

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 10,1 a9  
 Edition : 26.6.89  
 Replaces : 5.3.87  
 Test oil : ISO-4113  
 Combination no. : 9 400 231 039  
 Injection pump  
 Pump designation : PES6P110A720RS370  
 Governor  
 Governor design. : RSV450...1050P0/465

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6619A

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 010

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85  
 : (2.70...2.90)  
 Rack travel in mm : 10.50  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

A01

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1050  
 Rack travel in mm : 12.40...12.50

Del. quantity cm<sup>3</sup>/ : 17.4...17.6

100 s: (-)

Spread cm<sup>3</sup> : 0.4

100 s: (-)

2nd speed rpm : 450  
 Rack travel in mm : 5.90...6.10  
 Del. quantity cm<sup>3</sup>/ : 1.9...2.5

100 s: (-)

Spread cm<sup>3</sup> : 0.4

100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Aneroid pressure h: 930  
 Del. quantity : 174.0...176.0  
 1000 : (-)  
 Spread cm<sup>3</sup> : 4.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 43...51

Testing:  
 1st rack travel in: 11.40  
 Speed rpm : 1090...1100  
 2nd rack travel in: 4.00  
 Speed rpm : 1205...1235  
 4th rack travel in: 1300  
 Speed rpm : 0.30...1.70

## LOW IDLE 1

Control lever  
 position degrees: 21...29

Setting point w/out bumper spring

Speed rpm : 450  
Rack travel in mm : 5.5  
Speed rpm : 450  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 580...640  
Speed rpm : 850  
Maximum rack travel: 1.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050  
Rack travel in m: 12.40...12.50  
2nd speed rpm : 650  
Rack travel in m: 13.65...13.75

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Pressure hPa : 590  
Rack travel mm : 13.55...13.65

Measurement

Speed 1/min : 500

1st pressure hPa : 280  
Rack travel in m: 11.40...11.80

#### START CUT-OUT

Speed 1/min : 400...750

#### FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 930  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 198.5...201.5  
1000 s: (-)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 124.0...132.0  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

A02

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 190.0...210.0  
1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1170  
Del.quantity cm<sup>3</sup>/ : 65.0...75.0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 450  
Del.quantity cm<sup>3</sup>/ : 19.0...25.0  
1000 s: (-)

Remarks:

: JOHN DEERE # AR90118

Start-of-delivery mark at control-rod  
travel 10.5 mm and 15° after start of  
delivery.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 15.6 f  
 Edition : 02.05.89  
 Replaces : 17.8.87  
 Test oil : ISO-4113  
 Combination no. : 9 400 231 128  
 Injection pump  
 Pump designation : PES8P110A120RS3111  
 EP type number : 9 410 231 020  
 Governor  
 Governor design. : RSV400...1050P2/435-1  
 Governor no. : 9 420 234 084

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 8955 T

1st version kW : 216.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85  
 : (2.70...2.90)

A03

Rack travel in mm : 10.50  
 Firing order : 1- 5- 6- 3- 4- 2-  
 7- 8

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 1050  
 Rack travel in mm : 9.50...9.60  
 Del. quantity cm<sup>3</sup>/ : 14.7...14.9  
 100 s : (14.5...15.1)  
 Spread cm<sup>3</sup> : 0.4  
 100 s : (0.7)

2nd speed rpm : 400.0  
 Rack travel in mm : 4.6...4.8  
 Del. quantity cm<sup>3</sup>/ : 2.2...2.7  
 100 s : (2.0...3.0)  
 Spread cm<sup>3</sup> : 0.4  
 100 s : (0.7)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Aneroid pressure h: 900  
 Del. quantity : 147.0...149.0  
 1000 : (145.0...151.0)  
 Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 41...49

Testing:  
 1st rack travel in: 8.50  
 Speed rpm : 1095...1105  
 2nd rack travel in: 4.00  
 Speed rpm : 1155...1165

4th rack travel in: 1275  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 18...26  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 4.2

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 400  
Rack travel in mm : 4.60...4.80  
Rack travel in mm : 2.00  
Speed rpm : 540...600

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 9.50...9.60  
2nd speed rpm : 750  
Rack travel in m: 10.40...10.60

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 550  
Pressure hPa : 900  
Rack travel mm : 10.40...10.60

#### Measurement

Speed 1/min : 550

1st pressure hPa : -  
Rack travel in m: 8.80...9.00  
2nd pressure hPa : 390  
Rack travel in m: 10.20...10.30  
3rd pressure hPa : 280  
Rack travel in m: 9.10...9.50

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: 900  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 163.5...166.5  
1000 s: (161.0...169.0)  
Aneroid pressure h: -  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : 130.0...134.0  
1000 s: (128.0...136.0)

#### BREAKAWAY

A04

1st version  
1mm rack travel less than

full load rack tr: 8.50  
Speed rpm : 1095...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 180.0...200.0  
1000 s: (170.0...210.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 4.60...4.80  
Del.quantity cm<sup>3</sup>/ : 22.5...27.5  
1000 s: (20.0...30.0)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

#### Remarks:

: JOHN DEERE  
: # AR103264

Start-of-delivery mark 16° cam angle  
after start of delivery cyl. 8

#### APPLICATION

Wheel loader

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,6 g 8  
Edition : 07.04.89  
Replaces : 14.1.88  
Test oil : ISO-4113

Combination no. : 9 400 231 236

Injection pump  
Pump designation : PES6P110A72ORS3083-1  
EP type number : 9 410 231 027  
Governor  
Governor design. : RSV475...1050P2A455-  
3

Governor no. : 9 420 234 172

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6466A

1st version kW : 151.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 271 022

Outside diameter  
x Wall thickness  
x Length mm : 6.35X3.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55  
: (3.40...3.60)

A05

Rack travel in mm : 10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 13.6...13.9

100 s: (13.4...14.2)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 475.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.4...1.9

100 s: (1.2...2.2)

Spread cm3 : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 136.5...139.5

1000 : (134.0...142.0)

Spread cm3 : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 10.70

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1145...1155  
3rd rack travel in: 4.00  
Speed rpm : 1150...1170  
4th rack travel in: 1250  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 18...26  
Setting point w/out bumper spring  
Speed rpm : 475  
Rack travel in mm : 5.5

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 475  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 650...710

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 11.70...11.80  
2nd speed rpm : 700  
Rack travel in m: 12.10...12.20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 700  
Del.quantity cm3/ : 139.5...143.5  
1000 s: (136.5...146.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.70  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 150.0...170.0  
1000 s: (145.0...175.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 475  
Rack travel in mm : 5.90...6.10  
Del.quantity cm3/ : 14.5...19.5  
1000 s: (12.0...22.0)

Spread cm3 : 4.50  
1000 s: (7.50)

#### Remarks:

: JOHN DEERE # RE30252  
Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

Starting/full-load transition speed  
from holding magnet = 450 1/min.

Start-of-delivery mark 12° cam angle  
after start of delivery cyl. 1.

#### APPLICATION

Excavator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 v 17  
 Edition : 02.05.89  
 Replaces : 19.12.88  
 Test oil : ISO-4113  
 Combination no. : 9 407 083 267  
 Injection pump  
 Pump designation : PES6A90D410RS2596  
 EP type number : 0 410 896 073  
 Governor  
 Governor design. : RQV300...1400AB114SL  
 Governor no. : 9 420 080 148

Customer-spec. information  
 Customer : DIMLER-BENZ

Engine : OM352

1st version kW : 116.0  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

A07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 12.20...12.30

Del. quantity cm<sup>3</sup>/ : 6.8...6.9

100 s: (6.6...7.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 9.4...9.6

Del. quantity cm<sup>3</sup>/ : 1.2...1.6

100 s: (1.0...1.8)

Spread cm<sup>3</sup> : 0.2

100 s: (0.4)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 68.0...69.0

1000 : (66.0...71.0)

Spread cm<sup>3</sup> : 3.00

1000 : (5.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 59...67

Testing:  
1st rack travel in: 11.15  
Speed rpm : 1440...1450  
2nd rack travel in: 4.00  
Speed rpm : 1570...1600  
4th rack travel in: 1750  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 20...28

Testing:  
Speed rpm : 100  
Minimum rack travel: 11.00  
Speed rpm : 300  
Rack travel in mm : 9.40...9.60  
Rack travel in mm : 2.00  
Speed rpm : 570...630

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 49.5...51.5  
1000 s: (47.0...54.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.15  
Speed rpm : 1440...1450

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 73.0...83.0  
1000 s: (70.0...86.0)  
Rack travel in mm : 15.60...16.00

Remarks:

:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 2,3 M6  
Edition : 19.07.89  
replaces : 18.07.88  
Calibrating oil : ISO 4113

Injection pump : VE 4/1GF2100 L297-1  
Type number : 0 460 404 056

Customer-specific information  
Customer : OPEL

Engine : 2,3 YDT

Power k: 74

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : -  
(from BDC): -

Indicator setting:  
Piston stroke mm: 1.0  
Outlet : 0

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value mm: 5,1...5,5

KSB solenoid-operated  
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value bar: 5,4...6,0  
KSB solenoid-operated  
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 62,5...63,5  
KSB solenoid-operated  
valve volt: 12,0  
Dispersion cm<sup>3</sup> : 3,0  
1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 40,5...41,5  
KSB solenoid-operated  
valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 290  
Del. quantity cm<sup>3</sup>/  
1000H.: 13,5...17,5  
KSB solenoid-operated  
valve volt: 12,0  
Dispersion cm<sup>3</sup> : 3,0  
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 15,0...21,0  
KSB solenoid-operated  
valve volt: 12,0

Start:

Speed 1/min: 100  
Del. quantity : 57,0...59,0  
mind cm<sup>3</sup>/1000H.: -  
KSB solenoid-operated  
valve volt: 12,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 300  
Charge press. hPa: 1000  
TD travel mm: 1,5...3,5  
mm: (1,3...3,7)

KSB solenoid-operated  
valve volt: -  
2nd speed 1/min: 800  
Charge press. hPa: 1000  
TD travel mm: 3,5...5,9  
mm: (2,9...6,5)

KSB solenoid-operated  
valve volt: -  
3rd speed 1/min: 1200  
Charge press. hPa: 1000  
TD travel mm: 3,8...6,2  
mm: -

KSB solenoid-operated  
valve volt: -  
4th speed 1/min: 800  
Charge press. hPa: 1000  
TD travel mm: 1,1...1,9  
mm: (0,8...2,2)

KSB solenoid-operated  
valve volt: 12,0  
5th speed 1/min: 1200  
Charge press. hPa: 1000  
TD travel mm: 3,5...4,1  
mm: (3,1...4,5)

KSB solenoid-operated  
valve volt: 12,0  
6th speed 1/min: 1500  
Charge press. hPa: 1000  
TD travel mm: 5,1...5,5  
mm: (4,6...6,0)

KSB solenoid-operated  
valve volt: 12,0

1st speed 1/min: 2100  
Charge press. hPa: 1000  
TD travel mm: 7,8...8,6  
mm: (7,5...8,9)

Supply-pump pressure characteristic:

1st speed 1/min: 300  
Charge press. hPa: 1000  
Supply-pump  
pressure bar: 4,2...4,8  
KSB solenoid-operated  
valve volt: -  
2nd speed 1/min: 1200  
Charge press. hPa: 1000

Supply-pump  
pressure bar: 4,6...5,2  
KSB solenoid-operated  
valve volt: 12,0  
3rd speed 1/min: 1500  
Charge press. hPa: 1000

Supply-pump  
pressure bar: 5,4...6,0  
KSB solenoid-operated  
valve volt: 12,0  
4th speed 1/min: 2100  
Charge press. hPa: 1000  
Supply-pump  
pressure bar: 6,9...7,5  
KSB solenoid-operated  
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
KSB solenoid-operated  
valve volt: 12,0  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2100  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800\*  
Charge-air pressure-setting  
point hPa: 500  
LDA stroke mm: 6,5  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 59,5...60,5  
1000H.: (57,0...63,0)  
2nd speed 1/min: 2700  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 0,0...6,0  
1000H.: -  
3rd speed 1/min: 2500  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 15,0...21,0  
1000H.: (14,0...22,0)  
4th speed 1/min: 2100  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 51,3...53,7  
1000H.: (50,2...54,8)

5th speed 1/min: 1200  
 Charge press. hPa: 1000  
 KSB solenoid-operated  
   valve volt: 12,0  
 Del.quantity cm<sup>3</sup>/: 62,5...63,5  
                   1000H.: (60,7...65,3)  
 6th speed 1/min: 800  
 Charge press. hPa: 500  
 KSB solenoid-operated  
   valve volt: 12,0  
 Del.quantity cm<sup>3</sup>/: 59,5...60,5  
                   1000H.: (56,0...63,0)  
 7th speed 1/min: 800  
 Charge press. hPa: 1000  
 KSB solenoid-operated  
   valve volt: 12,0  
 Del.quantity cm<sup>3</sup>/: 60,5...63,5  
                   1000H.: -  
 8th speed 1/min: 800  
 Charge press. hPa: -  
 KSB solenoid-operated  
   valve volt: 12,0  
 Del.quantity cm<sup>3</sup>/: 40,5...43,5  
                   1000H.: -  
 9th speed 1/min: 500  
 Charge press. hPa: -  
 KSB solenoid-operated  
   valve volt: 12,0  
 Del.quantity cm<sup>3</sup>/: 40,5...41,5  
                   1000H.: (38,7...43,3)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 290  
 ELAB volt: -  
 Del.quantity cm<sup>3</sup>/: 0,0...3,0  
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 290  
 KSB solenoid-operated  
   valve volt: 12,0  
 Del.quantity cm<sup>3</sup>/: 13,5...17,5  
                   1000H.: (11,5...19,5)  
 2nd speed 1/min: 320  
 KSB solenoid-operated  
   valve volt: 12,0  
 Del.quantity cm<sup>3</sup>/: 7,0...13,0  
                   1000H.: (6,5...13,5)  
 3rd speed 1/min: 380  
 KSB solenoid-operated  
   valve volt: 12,0  
 Del.quantity cm<sup>3</sup>/: 0,0...2,6  
                   1000H.: (0,0...2,6)

Automatic starting fuel delivery:

1st speed 1/min: 250  
 KSB solenoid-operated  
   valve volt: 12,0  
 Del.quantity cm<sup>3</sup>/: -  
   ind. 1000H.: 55,0

2nd speed 1/min: 400  
 KSB solenoid-operated  
   valve volt: 12,0  
 Del.quantity cm<sup>3</sup>/: -  
 max. 1000H.: 50,0

3rd speed 1/min: 100  
 Del.quantity cm<sup>3</sup>/: (50,0...66,0)  
                   1000H.: -

Shutoff electromagnet:

Cut-in  
   min. voltage : 10,0  
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
 K mm : 3,2...3,4  
 KF mm : 5,6...6,0  
 MS mm : 0,8...1,2

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F 2,5P  
Edition : 18.07.89  
replaces : 27.07.88  
Calibrating oil : ISO 4113

Injection pump : VE 4/10F2050 R318  
Type number : 0 460 404 059

Customer-specific information  
Customer : IVECO-SOFIM

Engine : 8144.97.2200

Power k: 83

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Indicator setting:  
Piston stroke mm : 1.0  
Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 600  
Charge press. hPa: 800  
Setting value mm: 0,9...1,3

Supply-pump pressure:

Speed 1/min: 600  
Charge press. hPa: 800  
Setting value bar: 3,4...4,0

Full-load del. with charge press.:

Speed 1/min: 1200  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/  
1000H.: 62,5...65,5  
Dispersion cm<sup>3</sup>/  
1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 42,5...43,5

Low-idle speed regulation:

Speed 1/min: 425  
Del. quantity cm<sup>3</sup>/  
1000H.: 12,5...16,5

Full-load speed regulation:

Speed 1/min: 2475  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/  
1000H: 14,0...20,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 55,0

Load-dependent start of delivery:

Speed 1/min: 600  
Charge press. hPa: -

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 800  
TD travel mm: 0,9...1,3  
mm: (0,6...1,6)

2nd speed 1/min: 1200  
Charge press. hPa: 800  
TD travel mm: 4,2...5,0  
mm: (3,9...5,3)

3rd speed 1/min: 2000

Charge press. hPa: 800  
TD travel mm: 8,7...9,5  
mm: (8,4...9,8)  
4th speed 1/min: 2300  
TD travel mm: 10,0...10,8  
mm: -

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 800  
Supply-pump pressure bar: 3,4...4,0  
2nd speed 1/min: 1200  
Charge press. hPa: 800  
Supply-pump pressure bar: 5,2...5,8  
3rd speed 1/min: 2000  
Charge press. hPa: 800  
Supply-pump pressure bar: 7,2...7,8

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2050  
Charge press. hPa: 800  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600\*  
Charge-air pressure-setting point hPa: 290  
LDA stroke mm: 5,3  
Del. quantity cm<sup>3</sup>/: 53,0...54,0  
1000H.: (51,0...56,0)  
2nd speed 1/min: 2550  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/: 0,0...6,0  
1000H.: -  
3rd speed 1/min: 2475  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/: 14,0...20,0  
1000H.: (13,0...21,0)  
4th speed 1/min: 2350  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/: 35,0...43,0  
1000H.: -  
5th speed 1/min: 2050  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/: 54,0...57,0  
1000H.: (53,3...57,7)  
6th speed 1/min: 1950  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/: 56,0...57,0  
1000H.: (54,5...58,5)

7th speed 1/min: 1200  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/: 62,5...65,5  
1000H.: -  
8th speed 1/min: 600  
Charge press. hPa: 290  
Del. quantity cm<sup>3</sup>/: 53,0...54,0  
1000H.: (51,0...56,0)  
9th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 42,5...43,5  
1000H.: (40,5...45,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 425  
Del. quantity cm<sup>3</sup>/: 12,5...16,5  
1000H.: (10,5...18,5)  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 5,5...10,5  
1000H.: -  
3rd speed 1/min: 700  
Del. quantity cm<sup>3</sup>/: 2,0...5,0  
1000H.: -

Automatic starting fuel delivery:

2nd speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H.: 90,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,6...6,0
MS	mm	: 1,6...2,0
XK	mm	: 20,0...22,0
XL	mm	: 11,8...15,2

Remarks:

\* Correction at adjusting nut (46)

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 E  
Edition : 11.07.89  
replaces : 02.08.88  
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1100 R226  
Type number : 0 460 424 022

Customer-specific information  
Customer : CDC

Engine : 4 BT 390

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,8  
mm :  $\pm 0,02$  (0,06)

Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900  
Setting value mm: 2,3...2,7

Supply-pump pressure:

Speed 1/min: 900  
Setting value bar: 4,1...4,7

Full-load del. w/out charge press.:

Speed 1/min : 900  
Del. quantity cm<sup>3</sup>/  
1000H.: 67,5...68,5  
Dispersion cm<sup>3</sup>/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 335  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...14,0  
Dispersion cm<sup>3</sup>/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/  
1000H.: 53,0...59,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750  
TD travel mm: 1,3...2,1  
mm: (1,0...2,4)  
2nd speed 1/min: 900  
TD travel mm: 2,3...2,7  
mm: (1,8...3,2)  
3rd speed 1/min: 1100  
TD travel mm: 3,1...3,9  
mm: (2,8...4,2)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,3...2,9  
2nd speed 1/min: 900  
Supply-pump  
pressure bar: 4,1...4,7  
3rd speed 1/min: 1100

Supply-pump  
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1100  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1250  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1220  
Del. quantity cm3/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1180  
Del. quantity cm3/: 15,0...55,0  
1000H.: -  
4th speed 1/min: 1150  
Del. quantity cm3/: 53,0...59,0  
1000H.: (50,0...62,0)  
5th speed 1/min: 1100  
Del. quantity cm3/: 64,5...67,5  
1000H.: (63,0...69,0)  
6th speed 1/min: 900  
Del. quantity cm3/: 67,5...68,5  
1000H.: (65,0...71,0)  
7th speed 1/min: 750  
Del. quantity cm3/: 70,0...74,0  
1000H.: (68,0...76,0)  
8th speed 1/min: 500  
Del. quantity cm3/: 69,0...77,0  
1000H.: (67,0...79,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100  
Del. quantity cm3/: 0...3  
1000H.: -

Electr. shutoff:

Speed 1/min: 335  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 335  
Del. quantity cm3/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 500

Del. quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm3/: -  
ind. 1000H.: 80,0

2nd speed 1/min: 240  
Del. quantity cm3/: -  
max. 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,1...1,5
SVS max.	mm	:	3,2
XK	mm	:	18,8...20,8
XL	mm	:	12,2...15,6

Remarks:

: C.D.C. # 390 8185

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9E1  
Edition : 13.07.89  
replaces : 02.08.88  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/12F1150 R226-1  
Type number : 0 460 424 023

Customer-specific information  
Customer : CDC

Engine : 4 BT 390

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC):  $\pm 0,02$  (0,06)

Start of delivery block  
Piston stroke mm : 1,8  
mm :  $\pm 0,02$  (0,06)

Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900  
Setting value mm: 2,0...2,4

Supply-pump pressure:

Speed 1/min: 900  
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 900  
Del.quantity cm<sup>3</sup>/  
1000H.: 67,0...68,0  
Dispersion cm<sup>3</sup>/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm<sup>3</sup>/  
1000H.: 8,0...14,0  
Dispersion cm<sup>3</sup>/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1190  
Del.quantity cm<sup>3</sup>/  
1000H.: 47,0...53,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750  
TD travel mm: 0,8...1,6  
mm: (0,5...1,9)  
2nd speed 1/min: 900  
TD travel mm: 2,0...2,4  
mm: (1,5...2,9)  
3rd speed 1/min: 1150  
TD travel mm: 3,2...4,0  
mm: (2,9...4,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,5...3,1  
2nd speed 1/min: 900  
Supply-pump  
pressure bar: 4,2...4,8  
3rd speed 1/min: 1150

Supply-pump  
pressure bar: 5,2...5,8

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1150  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1300  
Del. quantity cm3/: 0,0...3,0  
1000H.: (0,0...3,0)  
2nd speed 1/min: 1260  
Del. quantity cm3/: 0,0...15,0  
1000H.: (0,0...15,0)  
3rd speed 1/min: 1220  
Del. quantity cm3/: 15,0...55,0  
1000H.: (15,0...55,0)  
4th speed 1/min: 1190  
Del. quantity cm3/: 47,0...53,0  
1000H.: (44,0...56,0)  
5th speed 1/min: 1150  
Del. quantity cm3/: 63,5...66,5  
1000H.: (62,0...68,0)  
6th speed 1/min: 900  
Del. quantity cm3/: 67,0...68,0  
1000H.: (64,5...70,5)  
7th speed 1/min: 750  
Del. quantity cm3/: 69,5...73,5  
1000H.: (67,5...75,5)  
8th speed 1/min: 500  
Del. quantity cm3/: 68,0...76,0  
1000H.: (66,0...78,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1150  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm3/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 500

Del. quantity cm3/: 0,0...4,0  
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm3/: -  
ind. 1000H.: 80,0

2nd speed 1/min: 240  
Del. quantity cm3/: -  
max. 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : -  
KF mm : 5,0...5,4  
MS mm : 1,1...1,5  
SVS max. mm : 4,0

Remarks:

: C.D.C. # 390 8184

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 E5  
Edition : 13.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/12F1150 R226-1  
Type number : 0 460 424 023  
Customer Part-No. : 3 908 193

Customer-specific information  
Customer : CDC

Engine : 4 BT 390

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,06)

Start of delivery block  
Piston stroke mm : 1,8  
mm :  $\pm 0,02$  (0,06)

Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

Setting value mm: 2,0...2,4

Supply-pump pressure:

Speed 1/min: 900  
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 900  
Del. quantity cm<sup>3</sup>/  
1000H.: 67,0...68,0  
Dispersion cm<sup>3</sup>/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...14,0  
Dispersion cm<sup>3</sup>/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1190  
Del. quantity cm<sup>3</sup>/  
1000H.: 47,0...53,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750  
TD travel mm: 0,8...1,6  
mm: (0,5...1,9)  
2nd speed 1/min: 900  
TD travel mm: 2,0...2,4  
mm: (1,5...2,9)  
3rd speed 1/min: 1150  
TD travel mm: 3,2...4,0  
mm: (2,9...4,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,5...3,1  
2nd speed 1/min: 900  
Supply-pump  
pressure bar: 4,2...4,8  
3rd speed 1/min: 1150

Supply-pump  
pressure bar: 5,2...5,8

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1150  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1300  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: (0,0...3,0)  
2nd speed 1/min: 1260  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: (0,0...15,0)  
3rd speed 1/min: 1220  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: (15,0...55,0)  
4th speed 1/min: 1190  
Del. quantity cm<sup>3</sup>/: 47,0...53,0  
1000H.: (44,0...56,0)  
5th speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/: 63,5...66,5  
1000H.: (62,0...68,0)  
6th speed 1/min: 900  
Del. quantity cm<sup>3</sup>/: 67,0...68,0  
1000H.: (64,5...70,5)  
7th speed 1/min: 750  
Del. quantity cm<sup>3</sup>/: 69,5...73,5  
1000H.: (67,5...75,5)  
8th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 68,0...76,0  
1000H.: (66,0...78,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 500

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Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 80,0

2nd speed 1/min: 240  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation  
K mm : -  
KF mm : 5,0...5,4  
MS mm : 1,1...1,5  
SVS max. mm : 4,0

Remarks:

:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 T  
Edition : 13.07.89  
replaces : 09.11.88  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1000 R225-12  
Type number : 0 460 426 081

Customer-specific information  
Customer : CDC

Engine : 6BT-5.9

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC):  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,0  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Setting value mm: 3,3...3,7

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 750  
Del. quantity cm<sup>3</sup>/  
1000H.: 46,5...47,5  
Dispersion cm<sup>3</sup>/  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 365  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...14,0  
Dispersion cm<sup>3</sup>/  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1050  
Del. quantity cm<sup>3</sup>/  
1000H.: 30,0...36,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 40,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,1...1,9  
mm: (0,8...2,2)  
2nd speed 1/min: 750  
TD travel mm: 3,3...3,7  
mm: (2,8...4,2)  
3rd speed 1/min: 1000  
TD travel mm: 5,3...6,1  
mm: (5,0...6,4)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,4...3,0  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3,5...4,1  
3rd speed 1/min: 1000

Supply-pump  
pressure bar: 4,6...5,2

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: (0,0...3,0)  
2nd speed 1/min: 1100  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: (0,0...15,0)  
3rd speed 1/min: 1060  
Del. quantity cm<sup>3</sup>/: 15,0...45,0  
1000H.: (15,0...45,0)  
4th speed 1/min: 1050  
Del. quantity cm<sup>3</sup>/: 30,0...36,0  
1000H.: (27,0...39,0)  
5th speed 1/min: 1000  
Del. quantity cm<sup>3</sup>/: 44,5...47,5  
1000H.: (43,0...49,0)  
6th speed 1/min: 900  
Del. quantity cm<sup>3</sup>/: 46,5...49,5  
1000H.: (44,5...51,5)  
7th speed 1/min: 750  
Del. quantity cm<sup>3</sup>/: 46,5...47,5  
1000H.: (43,0...50,0)  
8th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 33,0...41,0  
1000H.: (31,0...43,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1000  
Del. quantity cm<sup>3</sup>/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 365  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 365  
Del. quantity cm<sup>3</sup>/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 450

Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 200  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H.: 45,0

2nd speed 1/min: 370  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H.: 50,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation	
K	mm : -
KF	mm : 5,0...5,4
MS	mm : 1,0...1,4
SVS max.	mm : 1,5
XK	mm : 18,8...20,8
XL	mm : 8,9...12,3

Remarks:

: C.D.C. # 390 8204

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 T6  
Edition : 13.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/12F1000 R225-12  
Type number : 0 460 426 081  
Customer Part-No. : 3 908 211

Customer-specific information  
Customer : CDC

Engine : 6BT-5.9

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,0  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

Setting value mm: 3,3...3,7

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 750  
Del. quantity cm3/  
1000H.: 46,5...47,5  
Dispersion cm3/ : 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 365  
Del. quantity cm3/  
1000H.: 8,0...14,0  
Dispersion cm3/ : 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1050  
Del. quantity cm3/  
1000H.: 30,0...36,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 40,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,1...1,9  
mm: (0,8...2,2)  
2nd speed 1/min: 750  
TD travel mm: 3,3...3,7  
mm: (2,8...4,2)  
3rd speed 1/min: 1000  
TD travel mm: 5,3...6,1  
mm: (5,0...6,4)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,4...3,0  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3,5...4,1  
3rd speed 1/min: 1000

Supply-pump  
pressure bar: 4,6...5,2

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1000  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1150  
Del. quantity cm3/: 0,0...3,0  
1000H.: (0,0...3,0)  
2nd speed 1/min: 1100  
Del. quantity cm3/: 0,0...15,0  
1000H.: (0,0...15,0)  
3rd speed 1/min: 1060  
Del. quantity cm3/: 15,0...45,0  
1000H.: (15,0...45,0)  
4th speed 1/min: 1050  
Del. quantity cm3/: 30,0...36,0  
1000H.: (27,0...39,0)  
5th speed 1/min: 1000  
Del. quantity cm3/: 44,5...47,5  
1000H.: (43,0...49,0)  
6th speed 1/min: 900  
Del. quantity cm3/: 46,5...49,5  
1000H.: (44,5...51,5)  
7th speed 1/min: 750  
Del. quantity cm3/: 46,5...47,5  
1000H.: (43,0...50,0)  
8th speed 1/min: 500  
Del. quantity cm3/: 33,0...41,0  
1000H.: (31,0...43,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1000  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 365  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 365  
Del. quantity cm3/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 450

Del. quantity cm3/: 0,0...4,0  
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 200  
Del. quantity cm3/: -  
ind. 1000H.: 45,0

2nd speed 1/min: 370  
Del. quantity cm3/: -  
max. 1000H.: 50,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,0...1,4
SVS max.	mm	:	1,5
XK	mm	:	18,8...20,8
XL	mm	:	8,9...12,3

Remarks:

:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W2  
Edition : 13.07.89  
replaces : 14.07.88  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R225-17  
Type number : 0 460 426 118  
Customer Part-No. :

Customer-specific information  
Customer : CDC

Engine : 6BT- 5.9

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC): +-0,02 (0,04)

Start of delivery block  
Piston stroke mm: 1,5  
mm: +-0,002 (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900  
Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 900  
Setting value bar: 4,7...5,3

Full-load del. w/out charge press.:

Speed 1/min : 1000  
Del. quantity cm3/  
1000H.: 63,2...64,2  
Dispersion cm3/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm3/  
1000H.: 9,0...11,0  
Dispersion cm3/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1150  
Del. quantity cm3/  
1000H: 44,3...50,3

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750  
TD travel mm: 2,9...3,7  
mm: (2,6...4,0)  
2nd speed 1/min: 900  
TD travel mm: 4,2...4,6  
mm: (3,7...5,1)  
3rd speed 1/min: 1100  
TD travel mm: 5,5...6,3  
mm: (5,2...6,6)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,9...3,5  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 4,0...4,6

3rd speed 1/min: 900  
Supply-pump pressure bar: 4,7...5,3  
4th speed 1/min: 1100  
Supply-pump pressure bar: 5,5...6,1

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1100  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1240  
Del. quantity cm3/: 0,0...3,0  
1000H.: (0,0...3,0)  
2nd speed 1/min: 1220  
Del. quantity cm3/: 0,0...15,0  
1000H.: (0,0...15,0)  
3rd speed 1/min: 1180  
Del. quantity cm3/: 15,0...55,0  
1000H.: (0,0...40,0)  
4th speed 1/min: 1150  
Del. quantity cm3/: 44,3...50,3  
1000H.: (41,3...53,3)  
5th speed 1/min: 1100  
Del. quantity cm3/: 62,0...65,0  
1000H.: (60,5...66,5)  
6th speed 1/min: 1000  
Del. quantity cm3/: 63,2...64,2  
1000H.: (60,7...66,7)  
7th speed 1/min: 750  
Del. quantity cm3/: 78,5...82,5  
1000H.: (76,5...84,5)  
8th speed 1/min: 500  
Del. quantity cm3/: 81,5...91,5  
1000H.: (80,5...92,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm3/: 9,0...11,0  
1000H.: (5,0...15,0)  
2nd speed 1/min: 450  
Del. quantity cm3/: 0,0...4,0  
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 270  
Del. quantity cm3/: -  
ind. 1000H: 90,0

2nd speed 1/min: 400  
Del. quantity cm3/: -  
max. 1000H : 90,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation  
K mm : -  
KF mm : 5,0...5,4  
MS mm : 1,3...1,7  
XK mm : 18,8...20,8  
XL mm : 10,9...14,3

Remarks:

: C.D.C. # 3 912 126

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W3  
Edition : 13.07.89  
replaces : -  
Calibrating oil : ISO 4113  
Injection pump : VE 6/12F1100 R225-17  
Type number : 0 460 426 118  
Customer Part-No. : 3 912 125

Customer-specific information  
Customer : CDC

Engine : 6BT- 5.9

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) : +0,02 (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm : +0,002 (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

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Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 900  
Setting value bar: 4,7...5,3

Full-load del. w/out charge press.:

Speed 1/min : 1000  
Del. quantity cm3/  
1000H.: 63,2...64,2  
Dispersion cm3/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm3/  
1000H.: 9,0...11,0  
Dispersion cm3/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1150  
Del. quantity cm3/  
1000H: 44,3...50,3

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750  
TD travel mm: 2,9...3,7  
mm: (2,6...4,0)  
2nd speed 1/min: 900  
TD travel mm: 4,2...4,6  
mm: (3,7...5,1)  
3rd speed 1/min: 1100  
TD travel mm: 5,5...6,3  
mm: (5,2...6,6)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,9...3,5  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 4,0...4,6  
3rd speed 1/min: 900

Supply-pump  
pressure bar: 4,7...5,3  
4th speed 1/min: 1100  
Supply-pump  
pressure bar: 5,5...6,1

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1100  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1240  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: (0,0...3,0)  
2nd speed 1/min: 1220  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: (0,0...15,0)  
3rd speed 1/min: 1180  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: (0,0...40,0)  
4th speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/: 44,3...50,3  
1000H.: (41,3...53,3)  
5th speed 1/min: 1100  
Del. quantity cm<sup>3</sup>/: 62,0...65,0  
1000H.: (60,5...66,5)  
6th speed 1/min: 1000  
Del. quantity cm<sup>3</sup>/: 63,2...64,2  
1000H.: (60,7...66,7)  
7th speed 1/min: 750  
Del. quantity cm<sup>3</sup>/: 78,5...82,5  
1000H.: (76,5...84,5)  
8th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 81,5...91,5  
1000H.: (80,5...92,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100  
Del. quantity cm<sup>3</sup>/: 0...3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375

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Del. quantity cm<sup>3</sup>/: 9,0...11,0  
1000H.: (5,0...15,0)  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 270  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H.: 90,0

2nd speed 1/min: 400  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H.: 90,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,3...1,7
XK	mm	:	18,8...20,8
XL	mm	:	10,9...14,3

Remarks:

:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5,5 R  
Edition : 19.07.89  
replaces : 18.01.89  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/12F1350 R329  
Type number : 0 460 426 119

Customer-specific information  
Customer : IVECO-FIAT

Engine : 8060.25.221

Power k: 110

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC): +0,02 (0,04)

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Setting value mm: 3,0...3,4

Supply-pump pressure:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Setting value bar: 7,7...8,3

Full-load del. with charge press.:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm3/  
1000H.: 103,5...104,5  
Dispersion cm3/ : 5,0  
1000H.: -

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm3/  
1000H.: 66,6...67,5

Low-idle speed regulation:

Speed 1/min: 350  
Charge press. hPa: -  
Del. quantity cm3/  
1000H.: 13,0...17,0  
Dispersion cm3/ : 3,5  
1000H.: -

Full-load speed regulation:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm3/  
1000H.: 37,0...43,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 75,0

Load-dependent start of delivery:

Speed 1/min: 1200  
Charge press. hPa: 1000

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900  
Charge press. hPa: 1000  
TD travel mm: 0,7...1,5  
mm: (0,4...1,8)  
2nd speed 1/min: 1200  
Charge press. hPa: 1000

TD travel mm: 3,0...3,4  
mm: (2,5...3,9)  
3rd speed 1/min: 1350  
Charge press. hPa: 1000  
TD travel mm: 3,6...4,4  
mm: (3,3...4,7)

#### Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure bar: 5,0...5,6  
2nd speed 1/min: 900  
Charge press. hPa: 1000  
Supply-pump pressure bar: 6,6...7,2  
3rd speed 1/min: 1200  
Charge press. hPa: 1000  
Supply-pump pressure bar: 7,7...8,3  
4th speed 1/min: 1350  
Charge press. hPa: 1000  
Supply-pump pressure bar: 8,3...8,9

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1350  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 500\*  
Charge-air pressure-setting point hPa: 500  
LDA stroke mm: 4,8  
Del. quantity cm<sup>3</sup>/: 81,0...82,0  
1000H.: (78,5...84,5)  
2nd speed 1/min: 1600  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
3rd speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 37,0...43,0  
1000H.: (34,0...46,0)  
4th speed 1/min: 1350  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 99,0...102,0  
1000H.: (97,5...103,5)  
5th speed 1/min: 1200  
Charge press. hPa: 1000

Del. quantity cm<sup>3</sup>/: 103,5...104,5  
1000H.: (101,0...107,0)  
6th speed 1/min: 800  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 98,5...101,5  
1000H.: (97,0...103,0)  
7th speed 1/min: 500  
Charge press. hPa: 500  
Del. quantity cm<sup>3</sup>/: 81,0...82,0  
1000H.: (78,5...84,5)  
8th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 66,5...67,5  
1000H.: (64,0...70,0)

#### Zero delivery (stop):

#### Mech. shutoff:

Speed 1/min: 1350  
Del. quantity cm<sup>3</sup>/: 0,3  
1000H.: -

#### Electr. shutoff:

Speed 1/min: 400  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: 13,0...17,0  
1000H.: (10,0...20,0)  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0,0...5,0  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 150  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 85,0

2nd speed 1/min: 300  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 60,0

#### Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

#### Mounting and assembly dimensions:

Designation  
K mm : -  
KF mm : 5,0...5,4

MS                   mm : -  
SVS max.           mm : -

\* Correction at adjusting nut (46)

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5,5 R1  
Edition : 19.07.89  
replaces : 18.01.89  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1350 R329-1  
Type number : 0 460 426 120

Customer-specific information  
Customer : IVECO-FIAT

Engine : 8060.25.221

Power k: 91

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC):  $\pm 0,02$  (0,04)

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Setting value mm: 3,0...3,4

Supply-pump pressure:

B04

Speed 1/min: 1200  
Charge press. hPa: 1000  
Setting value bar: 7,7...8,3

Full-load del. with charge press.:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 96,0...97,0  
Dispersion cm<sup>3</sup>/  
1000H.: 5,0  
1000H.: -

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 66,6...67,5

Low-idle speed regulation:

Speed 1/min: 350  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 13,0...17,0  
Dispersion cm<sup>3</sup>/  
1000H.: 3,5  
1000H.: -

Full-load speed regulation:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 37,0...43,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 75,0

Load-dependent start of delivery:

Speed 1/min: 1200  
Charge press. hPa: 1000

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900  
Charge press. hPa: 1000  
TD travel mm: 0,7...1,5  
mm: (0,4...1,8)

2nd speed 1/min: 1200  
Charge press. hPa: 1000

TD travel mm: 3,0...3,4  
mm: (2,5...3,9)  
3rd speed 1/min: 1350  
Charge press. hPa: 1000  
TD travel mm: 3,6...4,4  
mm: (3,3...4,7)

#### Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure bar: 5,0...5,6  
2nd speed 1/min: 900  
Charge press. hPa: 1000  
Supply-pump pressure bar: 6,6...7,2  
3rd speed 1/min: 1200  
Charge press. hPa: 1000  
Supply-pump pressure bar: 7,7...8,3  
4th speed 1/min: 1350  
Charge press. hPa: 1000  
Supply-pump pressure bar: 8,3...8,9

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1350  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 500\*  
Charge-air pressure-setting point hPa: 500  
LDA stroke mm: 3,0  
Del. quantity cm<sup>3</sup>/: 81,0...82,0  
1000H.: (78,5...84,5)  
2nd speed 1/min: 1600  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
3rd speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 37,0...43,0  
1000H.: (34,0...46,0)  
4th speed 1/min: 1350  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 92,5...95,5  
1000H.: (91,0...97,0)  
5th speed 1/min: 1200  
Charge press. hPa: 1000

Del. quantity cm<sup>3</sup>/: 96,0...97,0  
1000H.: (93,5...99,5)  
6th speed 1/min: 800  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 90,5...93,5  
1000H.: (89,0...95,0)  
7th speed 1/min: 500  
Charge press. hPa: 500  
Del. quantity cm<sup>3</sup>/: 81,0...82,0  
1000H.: (78,5...84,5)  
8th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 66,5...67,5  
1000H.: (64,0...70,0)

#### Zero delivery (stop):

##### Mech. shutoff:

Speed 1/min: 1350  
Del. quantity cm<sup>3</sup>/: 0...3  
1000H.: -

##### Electr. shutoff:

Speed 1/min: 400  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

##### Idle delivery:

1st speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: 13,0...17,0  
1000H.: (10,0...20,0)  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0,0...5,0  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 150  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 85,0

2nd speed 1/min: 250  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H: 60,0

#### Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

#### Mounting and assembly dimensions:

##### Designation

K mm : -  
KF mm : 5,0...5,4

MS                    min : -  
SVS max.           min : -

\* Correction at adjusting nut (46)

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U43  
Edition : 11.07.89  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R173-12  
Type number : 0 460 426 126

Customer-specific information  
Customer : CDC

Engine : 6 BTA- 590 IND

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) : +-0,02 (0,04)

Start of delivery block  
Piston stroke mm : 1,85  
mm : +-0,02 (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Charge press. hPa: 1000

B07

Setting value mm: 1.3...1.7

Supply-pump pressure:

Speed 1/min: 750  
Charge press. hPa: 1000  
Setting value bar: 3.2...3.8

Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del.quantity cm3/  
1000H.: 83.0...84.0  
Dispersion cm3/ : 4.0  
1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del.quantity cm3/  
1000H.: 67.5...68.5  
Dispersion cm3/ : 9.0  
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm3/  
1000H.: 9.0...13.0  
Dispersion cm3/ : 5.5  
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1150  
Charge press. hPa: 1000  
Del.quantity cm3/  
1000H: 60.0...66.0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 80.0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
TD travel mm: 0.4...1.2  
mm: (0.1...1.5)

2nd speed 1/min: 750  
Charge press. hPa: 1000  
TD travel mm: 1.3...1.7  
mm: (0.8...2.2)

3rd speed 1/min: 1100  
Charge press. hPa: 1000  
TD travel mm: 2.2...3.0  
mm: (1.9...3.3)

#### Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
Supply-pump pressure bar: 2.6...3.2  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump pressure bar: 3.2...3.8  
3rd speed 1/min: 1100  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4.7...5.3

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...48  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1100  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 700\*  
Charge-air pressure-setting point hPa: 400  
Del. quantity cm<sup>3</sup>/: 77.5...78.5  
1000H.: (73.5...82.5)  
2nd speed 1/min: 1260  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
1000H.: -  
3rd speed 1/min: 1240  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0.0...15.0  
1000H.: -  
4th speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 15.0...55.0  
1000H.: -  
5th speed 1/min: 1150  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 60.0...66.0  
1000H.: (57.0...69.0)  
6th speed 1/min: 1100  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 78.0...81.0  
1000H.: (76.5...82.5)  
7th speed 1/min: 900  
Charge press. hPa: 1000

Del. quantity cm<sup>3</sup>/: 79.5...82.5  
1000H.: (78.0...84.0)  
8th speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 83.0...84.0  
1000H.: (80.5...86.5)  
9th speed 1/min: 500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 79.0...87.0  
1000H.: -  
10th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 67.5...68.5  
1000H.: (63.5...72.5)

#### Zero delivery (stop):

#### Mech. shutoff:

Speed 1/min: 1100  
Del. quantity cm<sup>3</sup>/: 0...3  
1000H.: -

#### Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 9.0...13.0  
1000H.: (6.0...16.0)  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 0.0...4.0  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 280  
ind. 1000H.: 80.0  
2nd speed 1/min: 440  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H.: 80.0

#### Shutoff electromagnet:

Cut-in  
min. voltage : 10.0  
Rated voltage : 12.0

#### Mounting and assembly dimensions:

#### Designation

K mm : -  
KF mm : 5,0...5,4  
MS mm : 1,0...1,4

SVS max.        mm    : -

Remarks:

: C.D.C. # 390 4727

\* Correction at adjusting nut (46)

Operate control lever after each  
manifold-pressure compensator pressure  
change.

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U42  
Edition : 11.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/12F1100 R173-12  
Type number : 0 460 426 126  
Customer Part-No. : 3 904 545  
  
Customer-specific information  
Customer : CDC  
  
Engine : 6 BTA- 590 IND

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0.35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 027  
  
Opening  
pressure bar : 250...253  
  
Perforated-plate  
diameter mm : 0.5  
  
Test inj. tubing : 1 680 750 017  
  
Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840  
  
Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)  
  
Start of delivery block  
Piston stroke mm : 1,85  
mm :  $\pm 0,02$  (0,06)  
  
Outlet : D  
  
Injection-pump setting values  
Test specifications in parentheses  
  
Timing-device travel:  
  
Speed 1/min: 750

Charge press. hPa: 1000  
Setting value mm: 1.3...1.7

Supply-pump pressure:

Speed 1/min: 750  
Charge press. hPa: 1000  
Setting value bar: 3.2...3.8

Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 83.0...84.0  
Dispersion cm<sup>3</sup>/ : 4.0  
1000H.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 67.5...68.5  
Dispersion cm<sup>3</sup>/ : 9.0  
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm<sup>3</sup>/  
1000H.: 9.0...13.0  
Dispersion cm<sup>3</sup>/ : 5.5  
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1150  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 60.0...66.0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 80.0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
TD travel mm: 0.4...1.2  
mm: (0.1...1.5)  
2nd speed 1/min: 750  
Charge press. hPa: 1000

TD travel mm: 1.3...1.7  
mm: (0.8...2.2)  
3rd speed 1/min: 1100  
Charge press. hPa: 1000  
TD travel mm: 2.2...3.0  
mm: (1.9...3.3)

#### Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
Supply-pump pressure bar: 2.6...3.2  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump pressure bar: 3.2...3.8  
3rd speed 1/min: 1100  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4.7...5.3

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...48  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1100  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm3/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 700\*  
Charge-air pressure-setting point hPa: 400  
Del. quantity cm3/: 77.5...78.5  
1000H.: (73.5...82.5)  
2nd speed 1/min: 1260  
Charge press. hPa: 1000  
Del. quantity cm3/: 0.0...3.0  
1000H.: -  
3rd speed 1/min: 1240  
Charge press. hPa: 1000  
Del. quantity cm3/: 0.0...15.0  
1000H.: -  
4th speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm3/: 15.0...55.0  
1000H.: -  
5th speed 1/min: 1150  
Charge press. hPa: 1000  
Del. quantity cm3/: 60.0...66.0  
1000H.: (57.0...69.0)  
6th speed 1/min: 1100  
Charge press. hPa: 1000  
Del. quantity cm3/: 78.5...81.5  
1000H.: (77.0...83.0)  
7th speed 1/min: 900

Charge press. hPa: 1000  
Del. quantity cm3/: 80.5...83.5  
1000H.: (79.0...85.0)  
8th speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm3/: 83.0...84.0  
1000H.: (80.5...86.5)  
9th speed 1/min: 500  
Charge press. hPa: 1000  
Del. quantity cm3/: 79.0...87.0  
1000H.: -  
10th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm3/: 67.5...68.5  
1000H.: (63.5...72.5)

#### Zero delivery (stop):

#### Mech. shutoff:

Speed 1/min: 1100  
Del. quantity cm3/: 0..3  
1000H.: -

#### Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm3/: 0.0...3.0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 375  
Del. quantity cm3/: 9.0...13.0  
1000H.: (6.0...16.0)  
2nd speed 1/min: 500  
Del. quantity cm3/: 0.0...4.0  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 280  
ind. 1000H: 80,0  
2nd speed 1/min: 440  
Del. quantity cm3/: -  
max. 1000H : 80.0

#### Shutoff electromagnet:

Cut-in  
min. voltage : 20.0  
Rated voltage : 24.0

#### Mounting and assembly dimensions:

#### Designation

K mm : -  
KF mm : 5,0...5,4

MS mm : 1,0...1,4  
SVS max. mm : -

Remarks:

\* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U20  
Edition : 11.07.89  
replaces : 02.02.89  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1050 R225-18  
Type number : 0 460 426 129

Customer-specific information  
Customer : CDC

Engine : 6BT-5.9 IND

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0.3  
(from BDC):  $\pm 0.02$  (0,04)

Start of delivery block  
Piston stroke mm : 1.5  
mm :  $\pm 0.02$  (0.06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Setting value mm: 3.4...3.8

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3.7...4.3

Full-load del. w/out charge press.:

Speed 1/min : 750  
Del.quantity cm<sup>3</sup>/  
1000H.: 75.0...76.0  
Dispersion cm<sup>3</sup>/  
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm<sup>3</sup>/  
1000H.: 10.0...12.0  
Dispersion cm<sup>3</sup>/  
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1100  
Del.quantity cm<sup>3</sup>/  
1000H: 52.0...58.0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm<sup>3</sup>/1000H.: 60.0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1.4...2.2  
mm: (1.1...2.5)  
2nd speed 1/min: 750  
TD travel mm: 3.4...3.8  
mm: (2.9...4.3)  
3rd speed 1/min: 1050  
TD travel mm: 4.6...5.4  
mm: (4.3...5.7)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2.6...3.2  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3.7...4.3  
3rd speed 1/min: 1050

Supply-pump  
pressure bar: 4.9...5.5

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1050  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1200  
Del. quantity cm3/: 0.0...3.0  
1000H.: -  
2nd speed 1/min: 1170  
Del. quantity cm3/: 0.0...15.0  
1000H.: -  
3rd speed 1/min: 1130  
Del. quantity cm3/: 15.0...55.0  
1000H.: -  
4th speed 1/min: 1100  
Del. quantity cm3/: 52.0...58.0  
1000H.: (49.0...61.0)  
5th speed 1/min: 1050  
Del. quantity cm3/: 68.5...71.5  
1000H.: (67.0...73.0)  
6th speed 1/min: 900  
Del. quantity cm3/: 71.5...74.5  
1000H.: (69.5...74.5)  
7th speed 1/min: 750  
Del. quantity cm3/: 75.0...76.0  
1000H.: (72.5...78.5)  
8th speed 1/min: 500  
Del. quantity cm3/: 59.5...67.5  
1000H.: (57.5...69.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: 12.0  
Del. quantity cm3/: 0.0...3.0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm3/: 10.0...12.0  
1000H.: (6.0...16.0)  
2nd speed 1/min: 450

Del. quantity cm3/: 0.0...4.0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm3/: -  
ind. 1000H.: 60.0

2nd speed 1/min: 240  
Del. quantity cm3/: -  
max. 1000H.: 60.0

Shutoff electromagnet:

Cut-in  
min. voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm : -  
KF mm : 5.0...5.4  
MS mm : 0.8...1.2  
SVS max. mm : -  
XK mm : -  
XL mm : -

Remarks:

: C.D.C. # 390 8201

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U37  
Edition : 12.07.89  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R373  
Type number : 0 460 426 142

Customer-specific information  
Customer : CUMMINS

Engine : 6 BTA

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,85  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Charge press. hPa: 1000

B15

Setting value mm: 1,3...1,7

Supply-pump pressure:

Speed 1/min: 750  
Charge press. hPa: 1000  
Setting value bar: 3,2...3,8

Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 84,5...85,5  
Dispersion cm<sup>3</sup>/  
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 68,5...69,5

Low-idle speed regulation:

Speed 1/min: 375  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...14,0  
Dispersion cm<sup>3</sup>/  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H: 59,0...65,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
TD travel mm: 0,4...1,2  
mm: (0,1...1,5)  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
TD travel mm: 1,3...1,7  
mm: (0,8...2,2)  
3rd speed 1/min: 1050

Charge press. hPa: 1000  
TD travel mm: 2,0...2,8  
mm: (1,7...3,1)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure bar: 2,2...2,8  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump pressure bar: 3,2...3,8  
3rd speed 1/min: 1050  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4,5...5,1

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Overflow quantity cm<sup>3</sup>/10s: (41...83)  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Overflow quantity cm<sup>3</sup>/10s: (55...138)  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700\*  
Charge-air pressure-setting point hPa: 400  
LDA stroke mm: 5,0  
Del. quantity cm<sup>3</sup>/: 77,5...78,5  
1000H.: (74,0...82,0)  
2nd speed 1/min: 1400  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
3rd speed 1/min: 1370  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -  
4th speed 1/min: 1330  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: -  
5th speed 1/min: 1300  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 59,0...65,0  
1000H.: (56,0...68,0)  
6th speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 76,0...79,0  
1000H.: (74,5...80,5)  
7th speed 1/min: 1050  
Charge press. hPa: 1000

Del. quantity cm<sup>3</sup>/: 80,5...83,5  
1000H.: (78,5...85,5)  
8th speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 84,5...85,5  
1000H.: (82,0...88,0)  
9th speed 1/min: 700  
Charge press. hPa: 400  
Del. quantity cm<sup>3</sup>/: 77,5...78,5  
1000H.: (74,0...82,0)  
10th speed 1/min: 500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 84,0...92,0  
1000H.: -  
11th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 68,5...69,5  
1000H.: (65,0...73,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 250  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 70,0  
2nd speed 1/min: 450  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 88,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,0...1,4
SVS max.	mm	:	2,0
XK	mm	:	21,8...23,8
XL	mm	:	13,8...17,2

Remarks:

: C.D.C. # 391 7002

\* Correction at adjusting nut (46)

Operate control lever after each  
manifold-pressure compensator pressure  
change.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 P  
 Edition : 18.07.89  
 replaces : 10.03.89  
 Calibrating oil : ISO 4113  
  
 Injection pump : VE 4/ 8F2300 R317  
 Type number : 0 460 484 020  
  
 Customer-specific information  
 Customer : RNUR  
  
 Engine : F8Q-A06

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 return temp. °C  
 with thermometer : 40...48  
 electronically : 42...50  
  
 Inlet press., bar : 0,35  
  
 Calibrating nozzle-holder  
 assembly : 1 688 901 022  
  
 Opening  
 pressure bar : 130...133  
  
 Test inj. tubing : 1 680 750 073  
  
 Outside diameter : 6  
 x Wall thickness : 2  
 x Length mm : 450  
  
 Start of delivery  
 Prestroke mm : -  
 (from BDC): -  
  
 Indicator setting:  
 Piston stroke mm: 1.0  
 Outlet : A

Injection-pump setting values  
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250  
 Setting value mm: 4,1...4,5  
 KSB solenoid-operated  
 valve volt: -

Supply-pump pressure:

Speed 1/min: 1250  
 Setting value bar: 4,5...5,1  
 KSB solenoid-operated  
 valve volt: -

Full-load del. w/out charge press.:

Speed 1/min : 1250  
 Del.quantity cm3/  
 1000H.: 31,6...32,6  
 KSB solenoid-operated  
 valve volt: -  
 Dispersion cm3/: 2,5  
 1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 410  
 Del.quantity cm3/  
 1000H.: 6,5...10,5  
 KSB solenoid-operated  
 valve volt: -  
 Dispersion cm3/: 2,5  
 1000H.: (3,0)  
 Residual-Delivery Setting  
 Speed 1/min: 500  
 Del.quantity cm3/  
 1000H.: 1,0...5,0  
 KSB-Solenoid-Operated  
 valve Volt : -

Full-load speed regulation:

Speed 1/min: 2450  
 Del.quantity cm3/  
 1000H.: 23,0...29,0  
 KSB solenoid-operated  
 valve volt: -

Start:

Speed 1/min: 100  
 Del.quantity : -  
 mind cm3/1000H.: 40,0  
 KSB solenoid-operated  
 valve volt: -

Load-dependent start of delivery:

Speed 1/min: 1250  
 KSB solenoid-operated  
 valve volt: -

Inspection-pump test specifications  
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 310  
TD travel mm: 0,6...3,0  
mm: -

KSB solenoid-operated  
valve volt: 12,0

2nd speed 1/min: 500  
TD travel mm: 1,9...4,3  
mm: -

KSB solenoid-operated  
valve volt: 12,0

3rd speed 1/min: 750  
TD travel mm: 1,9...2,7  
mm: (1,6...3,0)

KSB solenoid-operated  
valve volt: -

4th speed 1/min: 1250  
TD travel mm: 4,1...4,5  
mm: (3,6...5,0)

KSB solenoid-operated  
valve volt: -

5th speed 1/min: 2000  
TD travel mm: 7,4...8,2  
mm: (7,1...8,5)

KSB solenoid-operated  
valve volt: -

6th speed 1/min: 2250  
TD travel mm: 7,8...8,6  
mm: -

KSB solenoid-operated  
valve volt: -

#### Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump pressure bar: 3,1...3,7

KSB solenoid-operated  
valve volt: -

2nd speed 1/min: 1250  
Supply-pump pressure bar: 4,5...5,1

KSB solenoid-operated  
valve volt: -

3rd speed 1/min: 2250  
Supply-pump pressure bar: 7,0...7,6

KSB solenoid-operated  
valve volt: -

#### Overflow quantity at overflow valve:

1st speed 1/min: 750  
KSB solenoid-operated  
valve volt: -  
Overflow quantity cm<sup>3</sup>/10s: (26...98)

2nd speed 1/min: 2250  
KSB solenoid-operated  
valve volt: -

Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 2950  
KSB solenoid-operated  
valve volt: -  
Del.quantity cm<sup>3</sup>/: 0,0...5,0  
1000H.: (0,0...5,0)

2nd speed 1/min: 2650  
KSB solenoid-operated  
valve volt: -  
Del.quantity cm<sup>3</sup>/: 7,0...15,0  
1000H.: (6,0...16,0)

3rd speed 1/min: 2450  
KSB solenoid-operated  
valve volt: -  
Del.quantity cm<sup>3</sup>/: 23,0...29,0  
1000H.: (22,0...30,0)

4th speed 1/min: 2250  
KSB solenoid-operated  
valve volt: -  
Del.quantity cm<sup>3</sup>/: 31,2...33,2  
1000H.: (29,9...34,5)

5th speed 1/min: 2000  
KSB solenoid-operated  
valve volt: -  
Del.quantity cm<sup>3</sup>/: 30,6...32,6  
1000H.: (29,3...33,9)

6th speed 1/min: 1625  
KSB solenoid-operated  
valve volt: -  
Del.quantity cm<sup>3</sup>/: 30,0...33,0  
1000H.: (29,2...33,8)

7th speed 1/min: 1250  
KSB solenoid-operated  
valve volt: -  
Del.quantity cm<sup>3</sup>/: 31,6...32,6  
1000H.: (29,8...34,4)

8th speed 1/min: 750  
KSB solenoid-operated  
valve volt: -  
Del.quantity cm<sup>3</sup>/: 30,3...33,3  
1000H.: (29,5...34,1)

#### Zero delivery (stop):

#### Electr. shutoff:

Speed 1/min: 400  
ELAB volt: -  
Del.quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 410

KSB solenoid-operated  
valve volt: -  
Del. quantity cm<sup>3</sup>/: 6,5...10,5  
1000H.: (4,5...12,5)

High Idle:

Speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 7,0...11,0  
1000H.: (5,0...13,0)

KSB-Solenoid-operated  
valve Volt: -

Automatic starting fuel delivery:

1st speed 1/min: 210  
KSB solenoid-operated  
valve volt: -  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 45,0

2nd speed 1/min: 310  
KSB solenoid-operated  
valve volt: -  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,3...5,7
MS	mm	: 1,1...1,5
SVS max.	mm	: 2,7
XK	mm	: 18,7...20,7
XL	mm	: 11,2...14,6

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 P1  
Edition : 17.07.89  
replaces : 09.05.89  
Calibrating oil : ISO 4113

Injection pump : VE 4/ 8F2300 R317-2  
Type number : 0 460 484 030

Customer-specific information  
Customer : RNUR

Engine : F8Q-706

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 022

Opening  
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : -  
(from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250  
Setting value mm: 4,1...4,5  
KSB solenoid-operated  
valve volt: -

Supply-pump pressure:

Speed 1/min: 1250  
Setting value bar: 4,5...5,1

KSB solenoid-operated  
valve volt: -

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del.quantity cm3/  
1000H.: 31,6...32,6  
KSB solenoid-operated  
valve volt: -  
Dispersion cm3/: 2,5  
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 410  
Del.quantity cm3/  
1000H.: 6,5...10,5  
KSB solenoid-operated  
valve volt: -  
Dispersion cm3/: 2,5  
1000H.: (3,0)

Residual-Delivery Setting  
Speed 1/min: 500  
Charge press. hPa: -  
Del.quantity cm3/  
1000H.: 1,0...5,0

Full-load speed regulation:

Speed 1/min: 2450  
Del.quantity cm3/  
1000H.: 23,0...29,0  
KSB solenoid-operated  
valve volt: -

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 40,0  
KSB solenoid-operated  
valve volt: -

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 310  
TD travel mm: 0,6...3,0  
mm: -  
KSB solenoid-operated  
valve volt: 12,0  
2nd speed 1/min: 500

TD travel mm: 1,9...4,3  
 mm: -  
 KSB solenoid-operated valve volt: 12,0  
 3rd speed 1/min: 750  
 TD travel mm: 1,9...2,7  
 mm: (1,6...3,0)  
 KSB solenoid-operated valve volt: -  
 4th speed 1/min: 1250  
 TD travel mm: 4,1...4,5  
 mm: (3,6...5,0)  
 KSB solenoid-operated valve volt: -  
 5th speed 1/min: 2000  
 TD travel mm: 7,4...8,2  
 mm: (7,1...8,5)  
 KSB solenoid-operated valve volt: -  
 6th speed 1/min: 2250  
 TD travel mm: 7,8...8,6  
 mm: -  
 KSB solenoid-operated valve volt: -

#### Supply-pump pressure characteristic:

1st speed 1/min: 750  
 Supply-pump pressure bar: 3,1...3,7  
 KSB solenoid-operated valve volt: -  
 2nd speed 1/min: 1250  
 Supply-pump pressure bar: 4,5...5,1  
 KSB solenoid-operated valve volt: -  
 3rd speed 1/min: 2250  
 Supply-pump pressure bar: 7,0...7,6  
 KSB solenoid-operated valve volt: -

#### Overflow quantity at overflow valve:

1st speed 1/min: 750  
 KSB solenoid-operated valve volt: -  
 Overflow : 41...83  
 quantity cm<sup>3</sup>/10s: (26...98)  
 2nd speed 1/min: 2250  
 KSB solenoid-operated valve volt: -  
 Overflow : 55...138  
 quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 2950

KSB solenoid-operated valve volt: -  
 Del.quantity cm<sup>3</sup>/: 0,0...5,0  
 1000H.: -  
 2nd speed 1/min: 2650  
 KSB solenoid-operated valve volt: -  
 Del.quantity cm<sup>3</sup>/: 7,0...15,0  
 1000H.: (6,0...16,0)  
 3rd speed 1/min: 2450  
 KSB solenoid-operated valve volt: -  
 Del.quantity cm<sup>3</sup>/: 23,0...29,0  
 1000H.: (22,0...30,0)  
 4th speed 1/min: 2250  
 KSB solenoid-operated valve volt: -  
 Del.quantity cm<sup>3</sup>/: 31,2...33,2  
 1000H.: (29,9...34,5)  
 5th speed 1/min: 2000  
 KSB solenoid-operated valve volt: -  
 Del.quantity cm<sup>3</sup>/: 30,6...32,6  
 1000H.: (29,3...33,9)  
 6th speed 1/min: 1625  
 KSB solenoid-operated valve volt: -  
 Del.quantity cm<sup>3</sup>/: 30,0...33,0  
 1000H.: (29,2...33,8)  
 7th speed 1/min: 1250  
 KSB solenoid-operated valve volt: -  
 Del.quantity cm<sup>3</sup>/: 31,6...32,6  
 1000H.: (29,8...34,4)  
 8th speed 1/min: 750  
 KSB solenoid-operated valve volt: -  
 Del.quantity cm<sup>3</sup>/: 30,3...33,3  
 1000H.: (29,5...34,1)

#### Zero delivery (stop):

#### Electr. shutoff:

Speed 1/min: 400  
 ELAB volt: -  
 Del.quantity cm<sup>3</sup>/: 0,0...3,0  
 max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 410  
 KSB solenoid-operated valve volt: -  
 Del.quantity cm<sup>3</sup>/: 6,5...10,5  
 1000H.: (4,5...12,5)

#### High Idle:

Speed 1/min: 500  
Del.quantity cm3/: 7,0...11,0  
1000H.: (5,0...13,0)  
KSB-Solenoid-operated  
valve Volt: -

Residual:

Speed 1/min: 500  
Del.quantity : 1,0...5,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 210  
KSB solenoid-operated  
valve volt: -  
Del.quantity cm3/: -  
ind. 1000H: 45,0

2nd speed 1/min: 310  
KSB solenoid-operated  
valve volt: -  
Del.quantity cm3/: -  
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,3...5,7
MS	mm	: 1,1...1,5
SMS max.	mm	: 2,7
XK	mm	: 18,7...20,7
XL	mm	: 11,2...14,6

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,4 S6  
Edition : 18.07.89  
replaces : 03.02.89  
Calibrating oil : ISO 4113

Injection pump : VE 5/ 8F2200 L336  
Type number : 0 460 485 001

Customer-specific information  
Customer : AUDI

Engine : 153-2.4L

Power k: 60.0  
Speed 1/mi: 4400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : -  
(from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250  
Setting value mm: 2.7...3.1  
KSB solenoid-operated  
valve volt: 12.0

Supply-pump pressure:

Speed 1/min: 1250  
Setting value bar: 5.7...6.3  
KSB solenoid-operated  
valve volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min : 1250  
Del.quantity cm3/  
1000H.: 34.0...35.0  
KSB solenoid-operated  
valve volt: 12.0  
Dispersion cm3/: 2.0  
1000H.: -

Low-idle speed regulation:

Speed 1/min: 415  
Del.quantity cm3/  
1000H.: 7.0...9.0  
KSB solenoid-operated  
valve volt: 12.0  
Dispersion cm3/: 2.0  
1000H.: (3.0)  
Residual-Delivery Setting  
Speed 1/min: 540  
Del.quantity cm3/  
1000H.: 2.0...3.0  
KSB-Solenoid-Operated  
valve Volt : 12.0

Full-load speed regulation:

Speed 1/min: 2525  
Del.quantity cm3/  
1000H: 10.0...14.0  
KSB solenoid-operated  
valve volt: 12.0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 35.0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500\*  
TD travel mm: 2.3...2.7  
mm: (1.5...3.5)  
KSB solenoid-operated  
valve volt: -  
2nd speed 1/min: 750  
TD travel mm: 0.6...1.4  
mm: (0.3...1.7)

KSB solenoid-operated  
valve volt: 12.0  
3rd speed 1/min: 1250  
TD travel mm: 2.7...3.1  
mm: (2.2...3.6)

KSB solenoid-operated  
valve volt: 12.0  
4th speed 1/min: 2000  
TD travel mm: 5.9...6.7  
mm: (5.6...7.0)

KSB solenoid-operated  
valve volt: 12.0

#### Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 5.1...6.3

KSB solenoid-operated  
valve volt: -  
2nd speed 1/min: 750

Supply-pump  
pressure bar: 4.6...5.2

KSB solenoid-operated  
valve volt: 12.0

3rd speed 1/min: 1250

Supply-pump  
pressure bar: 5.7...6.3

KSB solenoid-operated  
valve volt: 12.0

4th speed 1/min: 2200

Supply-pump  
pressure bar: 7.7...8.3  
bar: (7.5...8.5)

KSB solenoid-operated  
valve volt: 12.0

#### Overflow quantity at overflow valve:

1st speed 1/min: 750  
KSB solenoid-operated  
valve volt: 12.0  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)

2nd speed 1/min: 2200  
KSB solenoid-operated  
valve volt: 12.0  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 2700  
KSB solenoid-operated  
valve volt: 12.0  
Del. quantity cm<sup>3</sup>/: 0.0...6.0  
1000H.: -

2nd speed 1/min: 2525  
KSB solenoid-operated  
valve volt: 12.0

Del. quantity cm<sup>3</sup>/: 10.0...14.0  
1000H.: (8.0...16.0)

3rd speed 1/min: 2425

KSB solenoid-operated  
valve volt: 12.0

Del. quantity cm<sup>3</sup>/: 18.0...28.0  
1000H.: (17.0...29.0)

4th speed 1/min: 2200

KSB solenoid-operated  
valve volt: 12.0

Del. quantity cm<sup>3</sup>/: 28.2...30.2  
1000H.: (27.0...31.4)

5th speed 1/min: 1250

KSB solenoid-operated  
valve volt: 12.0

Del. quantity cm<sup>3</sup>/: 34.0...35.0  
1000H.: (32.2...36.7)

6th speed 1/min: 750

KSB solenoid-operated  
valve volt: 12.0

Del. quantity cm<sup>3</sup>/: 29.7...32.7  
1000H.: (28.2...34.2)

7th speed 1/min: 500

KSB solenoid-operated  
valve volt: 12.0

Del. quantity cm<sup>3</sup>/: 28.5...33.5  
1000H.: (26.0...36.0)

#### Zero delivery (stop):

#### Electr. shutoff:

Speed 1/min: 415  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 415  
KSB solenoid-operated  
valve volt: 12.0  
Del. quantity cm<sup>3</sup>/: 7.0...9.0  
1000H.: (4.0...12.0)

2nd speed 1/min: 365  
KSB solenoid-operated  
valve volt: 12.0  
Del. quantity cm<sup>3</sup>/: 14.5...17.5  
1000H.: (12.0...20.0)

#### Residual:

Speed 1/min: 490  
Del. quantity : 2.5...4.5  
1000H.: (1.0...6.0)  
KSB-Solenoid-operated  
valve Volt: 12.0

#### Automatic starting fuel delivery:

1st speed 1/min: 180  
KSB solenoid-operated  
valve volt: 12.0  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 35.0

2nd speed 1/min: 380  
KSB solenoid-operated  
valve volt: 12.0  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 40.0

Shutoff electromagnet:

Cut-in  
min. voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	: 3.1...3.5
KF	mm	: K-OT
MS	mm	: 1.2...1.6
SVS max.	mm	: -

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,4 S7  
Edition : 19.07.89  
replaces : 11.05.89  
Calibrating oil : ISO 4113  
  
Injection pump : VE 5/ 8F2100 L358  
Type number : 0 460 485 003  
  
Customer-specific information  
Customer : VW  
  
Engine : 153-2,4L.T4

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0.35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 000  
  
Opening  
pressure bar : 147...150  
  
Test inj. tubing : 1 680 750 017  
  
Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840  
  
Start of delivery  
Prestroke mm : -  
(from BDC) : -

Injection-pump setting values  
Test specifications in parentheses

#### Timing-device travel:

Speed 1/min: 1250  
Setting value mm: 2,8...3,2

#### Supply-pump pressure:

Speed 1/min: 1250  
Setting value bar: 5,7...6,3

Full-load del. w/out charge press.:

Speed 1/min : 1250  
Del.quantity cm3/  
1000H.: 36,0...37,0  
Dispersion cm3/: 2,0  
1000H.: -

#### Low-idle speed regulation:

Speed 1/min: 415  
Del.quantity cm3/  
1000H.: 7,0...9,0  
Dispersion cm3/: 2,0  
1000H.: -  
Residual-Delivery Setting  
Speed 1/min: 540  
Del.quantity cm3/  
1000H.: 2,0...3,0

#### Full-load speed regulation:

Speed 1/min: 2400  
Del.quantity cm3/  
1000H.: 10,0...14,0

#### Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 35,0

#### Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications  
Test specifications in parentheses

#### Timing-device characteristic:

1st speed 1/min: 750  
TD travel mm: 0,6...1,4  
mm: (0,3...1,7)  
2nd speed 1/min: 1250  
TD travel mm: 2,8...3,2  
mm: (2,3...3,7)  
3rd speed 1/min: 1700  
TD travel mm: 5,1...5,9  
mm: (4,8...6,2)  
4th speed 1/min: 2100  
TD travel mm: 5,3...6,1  
mm: (5,0...6,4)

#### Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure bar: 4,2...4,8  
2nd speed 1/min: 1250

Supply-pump  
pressure bar: 5,7...6,3  
3rd speed 1/min: 2100  
Supply-pump  
pressure bar: 7,7...8,3

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 2100  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2600  
Del. quantity cm3/: 0,0...6,0  
1000H.: -  
2nd speed 1/min: 2400  
Del. quantity cm3/: 10,0...14,0  
1000H.: (8,0...16,0)  
3rd speed 1/min: 2300  
Del. quantity cm3/: 17,0...27,0  
1000H.: (16,0...28,0)  
4th speed 1/min: 2100  
Del. quantity cm3/: 30,5...32,5  
1000H.: (29,3...33,7)  
5th speed 1/min: 1250  
Del. quantity cm3/: 36,0...37,0  
1000H.: (34,3...38,7)  
6th speed 1/min: 600  
Del. quantity cm3/: 31,0...34,0  
1000H.: (29,5...35,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 415  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 415  
Del. quantity cm3/: 7,0...9,0  
1000H.: (4,0...12,0)

Residual:

Speed 1/min: 490  
Del. quantity : 2,3...4,3  
1000H.: (0,8...5,8)

Automatic starting fuel delivery:

1st speed 1/min: 180  
Del. quantity cm3/: -  
ind. 1000H: 35,0

2nd speed 1/min: 380  
Del. quantity cm3/: -  
max. 1000H : 37,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: K-0T
MS	mm	: 1,2...1,6
SVS max.	mm	: 2,4

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 1,6 A2  
Edition : 17.07.89  
replaces : 19.12.88  
Calibrating oil : ISO 4113  
Injection pump : VE 4/ 9F2400 R125-2  
Type number : 0 460 494 186

Customer-specific information  
Customer : FORD

Engine : 1,6 L.IDI

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 022

Opening  
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : -  
(from BDC): -

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel:

Speed 1/min: 1500  
Setting value mm: 4,3...4,7  
KSB solenoid-operated  
valve volt: 12,0

## Supply-pump pressure:

Speed 1/min: 1500  
Setting value bar: 5,3...5,9

KSB solenoid-operated  
valve volt: 12,0

## Full-load del. w/out charge press.:

Speed 1/min : 1750  
Del.quantity cm3/  
1000H.: 28,8...29,8  
KSB solenoid-operated  
valve volt: 12,0  
Dispersion cm3/: 2,5  
1000H.: -

## Low-idle speed regulation:

Speed 1/min: 440  
Del.quantity cm3/  
1000H.: 7,0...11,0  
KSB solenoid-operated  
valve volt: 12,0  
Dispersion cm3/: 2,0  
1000H.: -

## Full-load speed regulation:

Speed 1/min: 2675  
Del.quantity cm3/  
1000H.: 7,5...13,5  
KSB solenoid-operated  
valve volt: 12,0

## Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 50,0  
KSB solenoid-operated  
valve volt: 12,0

Inspection-pump test specifications  
Test specifications in parentheses

## Timing-device characteristic:

1st speed 1/min: 600  
TD travel mm: 2,2...4,2  
mm: -  
KSB solenoid-operated  
valve volt: -  
2nd speed 1/min: 1000  
TD travel mm: 1,3...2,1  
mm: (1,0...2,4)  
KSB solenoid-operated  
valve volt: 12,0  
3rd speed 1/min: 1500  
TD travel mm: 4,3...4,7  
mm: (3,8...5,2)  
KSB solenoid-operated  
valve volt: 12,0

4th speed 1/min: 2000  
TD travel mm: 6,8...7,6  
mm: (6,5...7,9)  
KSB solenoid-operated  
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure bar: 3,1...3,7  
KSB solenoid-operated  
valve volt: 12,0  
2nd speed 1/min: 1500  
Supply-pump  
pressure bar: 5,3...5,9  
KSB solenoid-operated  
valve volt: 12,0  
3rd speed 1/min: 2000  
Supply-pump  
pressure bar: 6,6...7,2  
KSB solenoid-operated  
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 600  
KSB solenoid-operated  
valve volt: 12,0  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2400  
KSB solenoid-operated  
valve volt: 12,0  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 0,0...2,0  
1000H.: -  
2nd speed 1/min: 2650  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 7,5...13,5  
1000H.: (6,5...14,5)  
3rd speed 1/min: 2550  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 18,5...26,5  
1000H.: (17,5...27,5)  
4th speed 1/min: 2400  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 27,2...29,2  
1000H.: (26,0...30,4)  
5th speed 1/min: 1750

KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 28,8...29,8  
1000H.: (27,1...31,5)  
6th speed 1/min: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 24,1...27,1  
1000H.: (23,4...27,8)  
7th speed 1/min: 600  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 23,0...26,0  
1000H.: (21,5...27,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 440  
ELAB volt: -  
Del.quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 440  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 7,0...11,0  
1000H.: (5,0...13,0)  
2nd speed 1/min: 475  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 2,5...7,5  
1000H.: (0,5...9,5)  
3rd speed 1/min: 570  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 0,0...3,6  
1000H.: -

Arrangement of drivers on engine-  
speed lever for exhaust-gas-  
recirculation valve linkage (guage)

1st speed 1/min: 1100  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 10,6...11,6  
1000H.: (9,1...13,1)

Automatic starting fuel delivery:

1st speed 1/min: 400  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: -  
ind. 1000H: 30,0

2nd speed 1/min: 500  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 30,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 1,6..1,85
SVS max.	mm	: 3,4

Remarks:

Note regarding Swiss version:

In the event of "smoke" complaint,  
turn full-load screw by 30° (in a  
counter-clockwise direction).

After correcting full-load delivery,  
have exhaust-gas-recirculation valve  
adjusted by Ford Service.

When setting and checking pump on  
injection-pump test bench, applicable  
full-load deliveries are 0,5 cm<sup>3</sup> /  
1000 strokes less than indicated in  
test-specification sheet.

For adjustment of switching point  
(EGR valve), include 12.0 mm spacer  
at third fuel-delivery stop.

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 1,6 X12  
Edition : 19.07.89  
replaces : 10.11.88  
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2250 R293  
Type number : 0 460 494 221

Customer-specific information  
Customer : VW

Engine : 086T-1.6L

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : -  
(from BDC): -

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel:

Speed 1/min: 1250  
Charge press. hPa: 750  
Setting value mm: 3,0...3,4

### Supply-pump pressure:

Speed 1/min: 1250  
Charge press. hPa: 750  
Setting value bar: 4,9...5,5

### Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/  
1000H.: 42,0...43,0  
Dispersion cm<sup>3</sup>/  
1000H.: (3,0)

### Full-load del. w/out charge press.:

Speed 1/min : 700  
Del. quantity cm<sup>3</sup>/  
1000H.: 26,5...27,5

### Low-idle speed regulation:

Speed 1/min: 425  
Del. quantity cm<sup>3</sup>/  
1000H.: 9,0...11,0  
Dispersion cm<sup>3</sup>/  
1000H.: (3,0)  
Residual-Delivery Setting  
Speed 1/min: 550  
Del. quantity cm<sup>3</sup>/  
1000H.: 2,0...3,0

### Full-load speed regulation:

Speed 1/min: 2525  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/  
1000H.: 13,0...17,0

### Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 35,0

### Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications  
Test specifications in parentheses

### Timing-device characteristic:

1st speed 1/min: 1000  
Charge press. hPa: 750  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)

2nd speed 1/min: 1250  
Charge press. hPa: 750  
TD travel mm: 3,0...3,4  
mm: (2,5...3,9)

3rd speed 1/min: 2000  
Charge press. hPa: 750

TD travel mm: 6,4...7,2  
mm: (6,1...7,5)  
4th speed 1/min: 2250  
Charge press. hPa: 750  
TD travel mm: 7,0...7,8  
mm: (6,7...8,1)

Supply-pump pressure characteristic:

1st speed 1/min: 700  
Charge press. hPa: 750  
Supply-pump pressure bar: 3,3...3,9  
2nd speed 1/min: 1250  
Charge press. hPa: 750  
Supply-pump pressure bar: 4,9...5,5  
3rd speed 1/min: 2250  
Charge press. hPa: 750  
Supply-pump pressure bar: 7,7...8,3

Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: -  
Overflow : 41...63  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2250  
Charge press. hPa: 750  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900\*  
Charge-air pressure-setting point hPa: 300  
LDA stroke mm: 5,5  
Del. quantity cm<sup>3</sup>/: 32,5...33,5  
1000H.: (30,0...36,0)  
2nd speed 1/min: 2650  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/: 0,0...6,0  
1000H.: -  
3rd speed 1/min: 2525  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/: 13,0...17,0  
1000H.: (11,0...19,0)  
4th speed 1/min: 2425  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/: 26,5...36,5  
1000H.: (25,5...37,5)  
5th speed 1/min: 2250  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/: 36,3...38,3  
1000H.: (35,1...39,5)  
6th speed 1/min: 1500  
Charge press. hPa: 750

Del. quantity cm<sup>3</sup>/: 42,0...43,0  
1000H.: (40,3...44,7)  
7th speed 1/min: 900  
Charge press. hPa: 300  
Del. quantity cm<sup>3</sup>/: 32,5...33,5  
1000H.: (30,0...36,0)  
8th speed 1/min: 700  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/: 34,0...37,0  
1000H.: (32,5...38,5)  
9th speed 1/min: 700  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 26,5...27,5  
1000H.: (24,0...30,0)  
10th speed 1/min: 600  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 25,0...30,0  
1000H.: (22,5...32,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 425  
Del. quantity cm<sup>3</sup>/: 9,0...11,0  
1000H.: (4,5...15,5)

High Idle:

Speed 1/min: 525  
Del. quantity cm<sup>3</sup>/: 9,0...11,0  
1000H.: (5,0...15,0)

Residual:

Speed 1/min: 500  
Del. quantity : 2,5...4,5  
1000H.: (0,0...7,0)

Automatic starting fuel delivery:

1st speed 1/min: 150  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 35,0

2nd speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 37,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: K1
KF	mm	: -
MS	mm	: 1,1...1,5
SVS max.	mm	: 3,1

\* Correction at adjusting nut (46)

Operate control lever after each  
manifold-pressure compensator pressure  
change.

Adjust damper rate:

Engine speed  $n = 1000 \text{ min}^{-1}$

Fuel delivery = 11.0...13.0 cm<sup>3</sup> /  
1000 strokes  
(8.0...16.0) cm<sup>3</sup> /  
1000 strokes

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 1,6 A3  
Edition : 17.07.89  
replaces : 19.12.88  
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2400 R125-3  
Type number : D 460 494 233

Customer-specific information  
Customer : FORD/GB

Engine : 1,6 L.IDI

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 022

Opening  
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : -  
(from BDC) : -

Indicator setting:  
Piston stroke mm : 0.92  
Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500  
Setting value mm: 5,7...6,1  
KSB solenoid-operated  
valve volt: 12,0

Supply-pump pressure:

C07

Speed 1/min: 1500  
Setting value bar: 5,3...5,9  
KSB solenoid-operated  
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min : 1750  
Del.quantity cm3/  
1000H.: 28,8...29,8  
KSB solenoid-operated  
valve volt: 12,0  
Dispersion cm3/: 2,5  
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 440  
Del.quantity cm3/  
1000H.: 7,0...11,0  
KSB solenoid-operated  
valve volt: 12,0  
Dispersion cm3/: 2,0  
1000H.: (2,0)

Full-load speed regulation:

Speed 1/min: 2675  
Del.quantity cm3/  
1000H.: 7,5...13,5  
KSB solenoid-operated  
valve volt: 12,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 50,0  
KSB solenoid-operated  
valve volt: 12,0

Load-dependent start of delivery:

Speed 1/min: 1100  
KSB solenoid-operated  
valve volt: 12,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
TD travel mm: 2,8...5,8  
mm: -  
KSB solenoid-operated  
valve volt: 12,0  
2nd speed 1/min: 800

TD travel mm: 2,8...3,6  
mm: (2,5...3,9)  
3rd speed 1/min: 1500  
TD travel mm: 5,7...6,1  
mm: (5,2...6,6)  
KSB solenoid-operated  
valve volt: 12,0  
4th speed 1/min: 2000  
TD travel mm: 7,5...8,3  
mm: (7,2...8,6)  
KSB solenoid-operated  
valve volt: 12,0

#### Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure bar: 3,1...3,7  
KSB solenoid-operated  
valve volt: 12,0  
2nd speed 1/min: 1500  
Supply-pump  
pressure bar: 5,3...5,9  
KSB solenoid-operated  
valve volt: 12,0  
3rd speed 1/min: 2000  
Supply-pump  
pressure bar: 6,6...7,2  
KSB solenoid-operated  
valve volt: 12,0

#### Overflow quantity at overflow valve:

1st speed 1/min: 600  
KSB solenoid-operated  
valve volt: 12,0  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2400  
KSB solenoid-operated  
valve volt: 12,0  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 2950  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 0,0...2,0  
1000H.: -  
2nd speed 1/min: 2675  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 7,5...13,5  
1000H.: (6,5...14,5)  
3rd speed 1/min: 2550  
KSB solenoid-operated  
valve volt: 12,0

Del. quantity cm<sup>3</sup>/: 18,5...26,5  
1000H.: (17,5...29,5)  
4th speed 1/min: 2400  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 27,2...29,2  
1000H.: (26,0...30,4)  
5th speed 1/min: 1750  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 28,8...29,8  
1000H.: (27,1...31,5)  
6th speed 1/min: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 24,1...27,1  
1000H.: (23,4...27,8)  
7th speed 1/min: 600  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 23,0...26,0  
1000H.: (21,5...27,5)

#### Zero delivery (stop):

#### Electr. shutoff:

Speed 1/min: 440  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 440  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 7,0...11,0  
1000H.: (5,0...13,0)  
2nd speed 1/min: 475  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 2,5...7,5  
1000H.: (0,5...9,5)  
3rd speed 1/min: 570  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 0,0...3,6  
1000H.: -

#### Arrangement of drivers on engine-speed lever for exhaust-gas-recirculation valve linkage (guage)

1st speed 1/min: 1100  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 10,6...11,6  
1000H.: (9,1...13,1)

Automatic starting fuel delivery:

1st speed 1/min: 400  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 30,0

2nd speed 1/min: 500  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 30,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,4...3,6
KF	mm	: 5,6...6,0
MS	mm	: 1,5...1,9
SVS max.	mm	: 3,0

Remarks:

Note regarding Swiss version:

In the event of "smoke" complaint,  
turn full-load screw by 30° (in a  
counter-clockwise direction).

After correcting full-load delivery,  
have exhaust-gas-recirculation valve  
adjusted by Ford Service.

When setting and checking pump on  
injection-pump test bench, applicable  
full-load deliveries are 0.5 cm<sup>3</sup> /  
1000 strokes less than indicated in  
test-specification sheet.

For adjustment of switching point  
(EGR valve), include 12.0 mm spacer  
at third fuel-delivery stop.

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,7 P5  
Edition : 19.07.89  
replaces : 16.01.89  
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2100 R343  
Type number : 0 460 494 246

Customer-specific information  
Customer : FIAT-AUTO

Engine : M710 DT 19 D

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 022

Opening  
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : -  
(from BDC) : -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value mm: 5,5...5,9  
KSB solenoid-operated  
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500  
Charge press. hPa: 1000

C10

Setting value bar: 5,3...5,9  
KSB solenoid-operated  
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 52,0...53,0

KSB solenoid-operated  
valve volt: 12,0  
Dispersion cm<sup>3</sup>/ : 2,5  
1000H : (2,5)

Full-load del. w/out charge press.:

Speed 1/min : 600  
Del. quantity cm<sup>3</sup>/  
1000H.: 40,0...41,0  
KSB solenoid-operated  
valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 400  
Del. quantity cm<sup>3</sup>/  
1000H.: 11,0...15,0

KSB solenoid-operated  
valve volt: 12,0  
Dispersion cm<sup>3</sup>/ : 2,5  
1000H.: (2,5)

Residual-Delivery Setting  
Speed 1/min: 700  
Del. quantity cm<sup>3</sup>/  
1000H.: 4,0...6,0

KSB-Solenoid-Operated  
valve Volt : 12,0

Full-load speed regulation:

Speed 1/min: 2300  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H: 30,0...36,0

KSB solenoid-operated  
valve volt: 12,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 55,0  
KSB solenoid-operated  
valve volt: 12,0

Load-dependent start of delivery:

Speed 1/min: 1500  
Charge press. hPa: -

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
TD travel mm: 3,2...4,8  
mm: (2,5...5,5)

KSB solenoid-operated  
valve volt: -

2nd speed 1/min: 1000  
Charge press. hPa: 1000

TD travel mm: 2,5...5,5  
mm: -

KSB solenoid-operated  
valve volt: -

3rd speed 1/min: 800  
Charge press. hPa: 1000

TD travel mm: 1,5...2,3  
mm: (1,2...2,6)

KSB solenoid-operated  
valve volt: 12,0

4th speed 1/min: 1500  
Charge press. hPa: 1000

TD travel mm: 5,5...5,9  
mm: (5,2...6,2)

KSB solenoid-operated  
valve volt: 12,0

5th speed 1/min: 2100  
Charge press. hPa: 1000

TD travel mm: 8,2...9,0  
mm: (7,9...9,3)

KSB solenoid-operated  
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 800  
Charge press. hPa: 1000  
Supply-pump pressure bar: 3,2...3,8

KSB solenoid-operated  
valve volt: 12,0

2nd speed 1/min: 1500  
Charge press. hPa: 1000

Supply-pump pressure bar: 5,3...5,9

KSB solenoid-operated  
valve volt: 12,0

3rd speed 1/min: 2100  
Charge press. hPa: 1000

Supply-pump pressure bar: 7,0...7,6

KSB solenoid-operated  
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 800  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2100  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800\*  
Charge-air pressure-setting  
point hPa: 400  
LDA stroke mm: 6,2  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 43,5...44,5  
1000H.: (41,5...46,5)

2nd speed 1/min: 2650  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 0,0...7,0  
1000H.: -

3rd speed 1/min: 2450  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 12,0...20,0  
1000H.: (11,0...21,0)

4th speed 1/min: 2300  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 30,0...36,0  
1000H.: (29,0...37,0)

5th speed 1/min: 2100  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 50,5...53,5  
1000H.: (49,5...54,5)

6th speed 1/min: 1500  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 52,0...53,0  
1000H.: (50,5...54,5)

7th speed 1/min: 800  
Charge press. hPa: 1000  
KSB solenoid-operated  
valve volt: 12,0  
Del.quantity cm<sup>3</sup>/: 55,5...58,5  
1000H.: -

8th speed 1/min: 800  
Charge press. hPa: 400  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 43,5...44,5  
1000H: (41,5...46,5)  
9th speed 1/min: 800  
Charge press. hPa: -  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 37,0...39,0  
1000H: (35,5...40,5)  
10th speed 1/min: 600  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 40,0...41,0  
1000H: (38,0...43,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 11,0...15,0  
1000H.: (9,5...16,5)

Residual:

Speed 1/min: 500  
Del. quantity : 6,5...9,5  
1000H.: -  
KSB-Solenoid-operated  
valve Volt: 12,0

Automatic starting fuel delivery:

1st speed 1/min: 220  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 57,0

2nd speed 1/min: 300  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H: 52,5

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : 3,2...3,4  
KF mm : 5,6...6,0  
MS mm : 1,0...1,4

Remarks:

Operate control lever after each  
manifold-pressure compensator pressure  
change.

\* Correction at adjusting nut (46)

Adjustment of potentiometer at control lever

Prerequisite: pump set  
Speed-control lever in idle position

Apply d.c. voltage 3.5...3.9 V to  
connection 1 (positive) and connection  
3 (ground).

Turn potentiometer until a voltage of  
3.07...3.13 V is indicated between  
connection 2 (positive) and connection  
3 (ground).

If potentiometer is set correctly, the  
voltage must drop to 1.0...1.4 V in  
max. control lever position.

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6 X13  
Edition : 19.07.89  
replaces : 10.05.89  
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2250 R328-2  
Type number : 0 460 494 252

Customer-specific information  
Customer : VW

Engine : 086 T-1,6L LLK

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : -  
(from BDC) : -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250  
Charge press. hPa: 750  
Setting value mm: 3,0...3,4

Supply-pump pressure:

Speed 1/min: 1250  
Charge press. hPa: 750  
Setting value bar: 4,9...5,5

Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/  
1000H.: 42,0...43,0  
Dispersion cm<sup>3</sup>/  
1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 700  
Del. quantity cm<sup>3</sup>/  
1000H.: 26,5...27,5

Low-idle speed regulation:

Speed 1/min: 425  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 9,0...11,0  
Dispersion cm<sup>3</sup>/  
1000H.: (3,0)

Residual-Delivery Setting

Speed 1/min: 550  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 2,0...3,0

Full-load speed regulation:

Speed 1/min: 2525  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/  
1000H.: 13,0...17,0

Start:

Speed 1/min: 100  
Charge press. hPa: -  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1250  
Charge press. hPa: -

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000  
Charge press. hPa: 750  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)  
2nd speed 1/min: 1250  
Charge press. hPa: 750

TD travel mm: 3,0...3,4  
mm: (2,5...3,9)  
3rd speed 1/min: 2000  
Charge press. hPa: 750  
TD travel mm: 6,4...7,2  
mm: (6,1...7,5)  
4th speed 1/min: 2250  
Charge press. hPa: 750  
TD travel mm: 7,0...7,8  
mm: (6,7...8,1)

#### Supply-pump pressure characteristic:

1st speed 1/min: 700  
Charge press. hPa: 750  
Supply-pump pressure bar: 3,3...3,9  
2nd speed 1/min: 1250  
Charge press. hPa: 750  
Supply-pump pressure bar: 4,9...5,5  
3rd speed 1/min: 2250  
Charge press. hPa: 750  
Supply-pump pressure bar: 7,7...8,3

#### Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: -  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2250  
Charge press. hPa: 750  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 900\*  
Charge-air pressure-setting point hPa: 300  
LDA stroke mm: 5,5  
Del. quantity cm<sup>3</sup>/: 33,0...34,0  
1000H.: (30,5...36,5)  
2nd speed 1/min: 2650  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/: 0,0...6,0  
1000H.: -  
3rd speed 1/min: 2525  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/: 13,0...17,0  
1000H.: (11,0...19,0)  
4th speed 1/min: 2425  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/: 26,5...36,5  
1000H.: (25,5...37,5)  
5th speed 1/min: 2250  
Charge press. hPa: 750

Del. quantity cm<sup>3</sup>/: 36,3...38,3  
1000H.: (35,1...39,5)  
6th speed 1/min: 1500  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/: 42,0...43,0  
1000H.: (40,3...44,7)  
7th speed 1/min: 900  
Charge press. hPa: 300  
Del. quantity cm<sup>3</sup>/: 33,0...34,0  
1000H.: (30,5...36,5)  
8th speed 1/min: 700  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 26,5...27,5  
1000H.: (24,0...30,0)  
9th speed 1/min: 700  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/: 34,0...37,0  
1000H.: (32,5...38,5)  
10th speed 1/min: 600  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 25,0...30,0  
1000H.: (22,5...32,5)

#### Zero delivery (stop):

#### Electr. shutoff:

Speed 1/min: 425  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 425  
Del. quantity cm<sup>3</sup>/: 9,0...11,0  
1000H.: (4,5...15,5)

#### High Idle:

Speed 1/min: 525  
Del. quantity cm<sup>3</sup>/: 9,0...11,0  
1000H.: (5,0...15,0)

#### Residual:

Speed 1/min: 500  
Del. quantity : 2,5...4,5  
1000H.: (0,0...7,0)

#### Automatic starting fuel delivery:

1st speed 1/min: 150  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 35,0  
2nd speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 37,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : K1

KF mm : 5,6...6,0

MS mm : 1,1...1,5

SVS max. mm : -

Remarks:

\* Correction at adjusting nut (46)

Operate control lever after each  
manifold-pressure compensator pressure  
change.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,7 P11  
Edition : 19.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/ 9F2300 256-2  
Type number : 0 460 494 253  
Customer Part-No. :

Customer-specific information  
Customer : FIAT-AUTO

Engine : M705 LA 19.0

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 022

Opening  
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : -  
(from BDC) : -

Indicator setting:  
Piston stroke mm : 1.0  
Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500  
Setting value mm: 4,4...4,8

Supply-pump pressure:

Speed 1/min: 1500  
Setting value bar: 5,2...5,9

Full-load del. w/out charge press.:

Speed 1/min : 1500  
Del. quantity cm3/  
1000H.: 29,5...30,5  
Dispersion cm3/: 2,5  
1000H.: -

Low-idle speed regulation:

Speed 1/min: 390  
Del. quantity cm3/  
1000H.: 10,0...14,0  
Dispersion cm3/: 2,5  
1000H.: (2,5)

Full-load speed regulation:

Speed 1/min: 2500  
Del. quantity cm3/  
1000H.: 18,5...24,5

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 55,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 1,1...1,9  
mm: (0,8...2,2)  
2nd speed 1/min: 1500  
TD travel mm: 4,4...4,8  
mm: (3,9...5,3)  
3rd speed 1/min: 2000  
TD travel mm: 6,6...7,4  
mm: (6,2...7,8)  
4th speed 1/min: 2300  
TD travel mm: 7,8...8,6  
mm: (7,5...8,9)

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure bar: 3,1...3,7

2nd speed 1/min: 1500  
Supply-pump pressure bar: 5,3...5,9  
3rd speed 1/min: 2300  
Supply-pump pressure bar: 7,1...7,7

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Overflow quantity : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2300  
Overflow quantity : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2900  
Del. quantity cm<sup>3</sup>/ : 0,0...6,0  
1000H.: -  
2nd speed 1/min: 2650  
Del. quantity cm<sup>3</sup>/ : 4,5...11,5  
1000H.: (3,0...11,0)  
3rd speed 1/min: 2500  
Del. quantity cm<sup>3</sup>/ : 18,5...24,5  
1000H.: (17,5...25,5)  
4th speed 1/min: 2300  
Del. quantity cm<sup>3</sup>/ : 30,8...33,2  
1000H.: (29,7...34,3)  
5th speed 1/min: 1500  
Del. quantity cm<sup>3</sup>/ : 29,5...30,5  
1000H.: (27,7...32,3)  
6th speed 1/min: 1000  
Del. quantity cm<sup>3</sup>/ : 29,6...32,0  
1000H.: (28,5...33,1)  
7th speed 1/min: 600  
Del. quantity cm<sup>3</sup>/ : 30,5...33,5  
1000H.: (29,0...35,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 390  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/ : 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 390  
Del. quantity cm<sup>3</sup>/ : 10,0...14,0  
1000H.: (7,0...17,0)  
2nd speed 1/min: 440  
Del. quantity cm<sup>3</sup>/ : 0,0...6,0  
1000H.: (0,0...8,5)  
3rd speed 1/min: 500

Del. quantity cm<sup>3</sup>/ : 0,0...3,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300  
Del. quantity cm<sup>3</sup>/ : -  
ind. 1000H.: 48,0

2nd speed 1/min: 400  
Del. quantity cm<sup>3</sup>/ : -  
max. 1000H.: 45,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : 5,6...6,0  
KF mm : 3,2...3,4  
MS mm : 1,6...2,0

Remarks:

:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA 2,2 L  
Edition : 17.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/10F1900 R356  
Type number : O 460 404 062  
  
Customer-specific information  
Customer : VM  
  
Engine : HR 492

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0.35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 000  
  
Opening  
pressure bar : 147...150  
  
Test inj. tubing : 1 680 750 017  
  
Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840  
  
Start of delivery  
Prestroke mm : -  
(from BDC) : -

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel:

Speed 1/min: 1600  
Charge press. hPa: 800  
Setting value mm: 5,1...5,5

### Supply-pump pressure:

Speed 1/min: 1600  
Charge press. hPa: 800  
Setting value bar: 5,5...6,1

### Full-load del. with charge press.:

Speed 1/min: 1600  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/  
1000H.: 47,0...48,0  
Dispersion cm<sup>3</sup>/ : 3,0  
1000H : -

### Full-load del. w/out charge press.:

Speed 1/min : 600  
Del. quantity cm<sup>3</sup>/  
1000H.: 33,0...34,0

### Low-idle speed regulation:

Speed 1/min: 350  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 16,0...20,0  
Dispersion cm<sup>3</sup>/ : 3,0  
1000H.: -

### Full-load speed regulation:

Speed 1/min: 1030  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/  
1000H: 17,0...23,0

### Start:

Speed 1/min: 100  
Charge press. hPa: -  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 65,0

Inspection-pump test specifications  
Test specifications in parentheses

### Timing-device characteristic:

1st speed 1/min: 1000  
Charge press. hPa: 800  
TD travel mm: 1,0...1,8  
mm: (0,7...2,1)  
2nd speed 1/min: 1600  
Charge press. hPa: 800  
TD travel mm: 5,1...5,5  
mm: (4,6...6,0)  
3rd speed 1/min: 1900  
Charge press. hPa: 800  
TD travel mm: 6,7...7,5  
mm: (6,4...7,8)

### Supply-pump pressure characteristic:

1st speed 1/min: 1000

Charge press. hPa: 800

Supply-pump

pressure bar: 3,5...4,1

2nd speed 1/min: 1600

Charge press. hPa: 800

Supply-pump

pressure bar: 5,5...6,1

3rd speed 1/min: 1900

Charge press. hPa: 800

Supply-pump

pressure bar: 6,5...7,1

Overflow quantity at overflow valve:

1st speed 1/min: 600

Charge press. hPa: -

Overflow : 41...83

quantity cm3/10s: (26...98)

2nd speed 1/min: 1900

Charge press. hPa: 800

Overflow : 55...138

quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750

Charge-air pressure-setting

point hPa: 300

Del. quantity cm3/: 42,0...43,5

1000H.: (40,5...45,5)

2nd speed 1/min: 2070

Charge press. hPa: 800

Del. quantity cm3/: 0,0...3,0

1000H.: -

3rd speed 1/min: 2030

Charge press. hPa: 800

Del. quantity cm3/: 17,0...23,0

1000H.: (16,0...24,0)

4th speed 1/min: 1900

Charge press. hPa: 800

Del. quantity cm3/: 44,9...47,9

1000H.: (43,4...49,4)

5th speed 1/min: 1600

Charge press. hPa: 800

Del. quantity cm3/: 47,0...48,0

1000H.: (45,5...49,5)

6th speed 1/min: 1600

Charge press. hPa: -

Del. quantity cm3/: 31,0...34,0

1000H.: -

7th speed 1/min: 750

Charge press. hPa: 300

Del. quantity cm3/: 42,5...43,5

1000H.: (40,5...45,5)

8th speed 1/min: 600

Charge press. hPa: -

Del. quantity cm3/: 33,0...34,0

1000H.: (31,0...36,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1900

Del. quantity cm3/: 0...3

1000H.: -

Electr. shutoff:

Speed 1/min: 400

ELAB volt: 12,0

Del. quantity cm3/: 0,0...3,0

max. 1000H.: -

Idle delivery:

1st speed 1/min: 350

Del. quantity cm3/: 16,0...20,0

1000H.: (13,0...23,0)

2nd speed 1/min: 430

Del. quantity cm3/: 0,0...6,0

1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350

Charge press. hPa: -

Del. quantity cm3/: -

ind. 1000H: 45,0

2nd speed 1/min: 450

Charge press. hPa: -

Del. quantity cm3/: -

max. 1000H : 40,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4

KF mm : 5,6...6,0

MS mm : 1,3...1,7

SVS max. mm : 5,7

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F 2,5 P2  
Edition : 17.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/10F2050 R361  
Type number : 0 460 404 064  
  
Customer-specific information  
Customer : S0FIM  
  
Engine : 8144.97.2280

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0.35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC) :  $\pm 0,02$  (0,04)

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000  
Charge press. hPa: 1000  
Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1000  
Charge press. hPa: 1000  
Setting value bar: 5,1...5,7

Full-load del. with charge press.:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 65,0...66,0  
Dispersion cm<sup>3</sup>/  
1000H.: 3,0

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 42,0...43,0

Low-idle speed regulation:

Speed 1/min: 425  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 9,0...13,0  
Dispersion cm<sup>3</sup>/  
1000H.: -

Residual-Delivery Setting

Speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 3,0...7,0

Full-load speed regulation:

Speed 1/min: 2500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 21,0...27,0

Start:

Speed 1/min: 100  
Charge press. hPa: -  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Load-dependent start of delivery:

Speed 1/min: 1000  
Charge press. hPa: 1000

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
TD travel mm: 0,9...1,7  
mm: (0,6...2,0)  
2nd speed 1/min: 1000  
Charge press. hPa: 1000

TD travel mm: 2,8...3,2  
mm: (2,5...3,5)  
3rd speed 1/min: 2000  
Charge press. hPa: 1000  
TD travel mm: 7,4...8,2  
mm: (7,1...8,5)  
4th speed 1/min: 2200  
Charge press. hPa: 1000  
TD travel mm: 8,3...9,1  
mm: (8,0...9,4)

#### Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4,1...4,7  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump pressure bar: 5,1...5,7  
3rd speed 1/min: 2000  
Charge press. hPa: 1000  
Supply-pump pressure bar: 7,3...7,9

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2300  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 800  
Charge-air pressure-setting point hPa: 400  
Del. quantity cm<sup>3</sup>/: 55,5...56,5  
1000H.: (53,5...58,5)  
2nd speed 1/min: 2600  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 1,0...6,0  
1000H.: -  
3rd speed 1/min: 2500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 21,0...27,0  
1000H.: (20,0...28,0)  
4th speed 1/min: 2300  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 56,5...59,5  
1000H.: (55,8...60,2)  
5th speed 1/min: 1950  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 63,0...66,0  
1000H.: -

6th speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 64,7...65,7  
1000H.: (63,2...67,2)  
7th speed 1/min: 800  
Charge press. hPa: 400  
Del. quantity cm<sup>3</sup>/: 55,5...56,5  
1000H.: (53,5...58,5)  
8th speed 1/min: 800  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 62,5...65,5  
1000H.: -  
9th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 42,0...43,0  
1000H.: (43,5...48,5)

#### Zero delivery (stop):

#### Electr. shutoff:

Speed 1/min: 425  
ELAB volt: 12,0  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 425  
Del. quantity cm<sup>3</sup>/: 9,0...13,0  
1000H.: (8,0...14,0)  
2nd speed 1/min: 475  
Del. quantity cm<sup>3</sup>/: 3,0...9,0  
1000H.: -

#### Residual:

Speed 1/min: 650  
Del. quantity : 1,0...4,0  
1000H.: -

Arrangement of drivers on engine-speed lever for exhaust-gas-recirculation valve linkage (guage)

1st speed 1/min: 1000  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 42,0...44,0  
1000H.: (40,5...45,5)

#### Automatic starting fuel delivery:

1st speed 1/min: 200  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H.: 70,0  
2nd speed 1/min: 350  
Charge press. hPa: -

Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 41,5

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,6...6,0
MS	mm	:	1,6...2,0
SVS max.	mm	:	-

Remarks:

Operate control lever after each  
manifold-pressure compensator pressure  
change.

\* Correction at adjusting nut (46)

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F 2,5 P3  
Edition : 17.07.89  
replaces : -  
Calibrating oil : ISO 4113  
Injection pump : VE 4/10F2050 R364  
Type number : 0 460 404 066

Customer-specific information  
Customer : S0FIM

Engine : 8140.67.2580

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC): +0,02 (0,04)

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel:

Speed 1/min: 1000  
Setting value mm: 4,0...4,4

## Supply-pump pressure:

Speed 1/min: 1000  
Setting value bar: 4,5...5,1

Full-load del. w/out charge press.:

Speed 1/min : 2000  
Del.quantity cm3/  
1000H.: 38,5...39,5  
Dispersion cm3/: 3,0  
1000H.: -

## Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm3/  
1000H.: 14,0...18,0  
Dispersion cm3/: 3,0  
1000H.: -

## Full-load speed regulation:

Speed 1/min: 2200  
Del.quantity cm3/  
1000H.: 13,0...19,0

## Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 70,0

## Load-dependent start of delivery:

Speed 1/min: 1000

Inspection-pump test specifications  
Test specifications in parentheses

## Timing-device characteristic:

1st speed 1/min: 600  
TD travel mm: 1,9...2,7  
mm: (1,6...3,0)  
2nd speed 1/min: 1000  
TD travel mm: 4,0...4,4  
mm: (3,5...4,9)  
3rd speed 1/min: 1800  
TD travel mm: 8,0...8,8  
mm: (7,7...9,1)  
4th speed 1/min: 2000  
TD travel mm: 8,6...9,4  
mm: (8,3...9,7)

## Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure bar: 3,5...4,1  
2nd speed 1/min: 1000  
Supply-pump  
pressure bar: 4,5...5,1  
3rd speed 1/min: 2000  
Supply-pump  
pressure bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2330  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 2200  
Del. quantity cm<sup>3</sup>/: 13,0...19,0  
1000H.: (12,0...20,0)  
3rd speed 1/min: 2150  
Del. quantity cm<sup>3</sup>/: 23,5...30,5  
1000H.: -  
4th speed 1/min: 2000  
Del. quantity cm<sup>3</sup>/: 38,5...39,5  
1000H.: (37,0...41,0)  
5th speed 1/min: 1000  
Del. quantity cm<sup>3</sup>/: 43,0...46,0  
1000H.: (41,5...47,5)  
6th speed 1/min: 600  
Del. quantity cm<sup>3</sup>/: 37,5...40,5  
1000H.: (35,5...42,5)  
7th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 36,2...39,8  
1000H.: (34,5...41,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 14,0...18,0  
1000H.: (11,0...21,0)  
2nd speed 1/min: 400  
Del. quantity cm<sup>3</sup>/: 7,0...13,0  
1000H.: (5,0...15,0)  
3rd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0,0...2,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400

Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 44,0

2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H: 44,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : -  
KF mm : 5,6...6,0  
MS mm : 1,6...2,0  
SVS max. mm : 1,9

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 2,4 S10  
Edition : 19.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/10F2150 L354  
Type number : 0 460 406 063

Customer-specific information  
Customer : VW

Engine : 087-LT

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 000

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : -  
(from BDC) : -

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel:

Speed 1/min: 1500  
Setting value mm: 2,8...3,2

## Supply-pump pressure:

Speed 1/min: 1500  
Setting value bar: 6,0...6,6

Full-load del. w/out charge press.:

Speed 1/min : 1250  
Del.quantity cm3/  
1000H.: 28,5...29,5  
Dispersion cm3/  
1000H.: -

## Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm3/  
1000H.: 6,0...10,0  
Dispersion cm3/  
1000H.: (3,0)

## Full-load speed regulation:

Speed 1/min: 2325  
Del.quantity cm3/  
1000H.: 10,0...14,0

## Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 35,0

## Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications  
Test specifications in parentheses

## Timing-device characteristic:

1st speed 1/min: 1000  
TD travel mm: 0,5...1,3  
mm: (0,2...1,6)  
2nd speed 1/min: 1500  
TD travel mm: 2,8...3,2  
mm: (2,3...3,7)  
3rd speed 1/min: 1700  
TD travel mm: 3,6...4,4  
mm: (3,3...4,7)  
4th speed 1/min: 2150  
TD travel mm: 3,7...4,5  
mm: (3,4...4,8)

## Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump  
pressure bar: 4,0...4,6  
2nd speed 1/min: 1500  
Supply-pump  
pressure bar: 6,0...6,6  
3rd speed 1/min: 2150  
Supply-pump  
pressure bar: 7,7...8,3

Overflow quantity at overflow valve:

1st speed 1/min: 750  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 2150  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2500  
Del. quantity cm3/: 0,0...6,0  
1000H.: -  
2nd speed 1/min: 2325  
Del. quantity cm3/: 10,0...14,0  
1000H.: (8,0...16,0)  
3rd speed 1/min: 2275  
Del. quantity cm3/: 12,5...22,5  
1000H.: (11,5...23,5)  
4th speed 1/min: 2150  
Del. quantity cm3/: 22,0...24,0  
1000H.: (20,8...25,2)  
5th speed 1/min: 1250  
Del. quantity cm3/: 28,5...29,5  
1000H.: (26,8...31,2)  
6th speed 1/min: 750  
Del. quantity cm3/: 26,0...29,0  
1000H.: (24,5...30,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm3/: 6,0...10,0  
1000H.: (4,0...12,0)  
2nd speed 1/min: 500  
Del. quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300  
Del. quantity cm3/: -  
ind. 1000H: 35,0  
2nd speed 1/min: 500  
Del. quantity cm3/: -  
max. 1000H : 35,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 6,3...6,7
MS	mm	: 1,3...1,7
SVS max.	mm	: 4,3

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER  
Edition : 10.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/11F2250 R327  
Type number : 0 460 414 065  
  
Customer-specific information  
Customer : PERKINS  
  
Engine : PRIMA N/A

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0.35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 022

Opening  
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : -  
(from BDC): -

Start of delivery block  
Piston stroke mm: 1,1  
mm: -

Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1800  
Setting value mm: 4,2...4,6  
KSB solenoid-operated  
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1800  
Setting value bar: 6,7...7,3  
KSB solenoid-operated  
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min : 450  
Del. quantity cm3/  
1000H.: 32,0...33,0  
KSB solenoid-operated  
valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 400  
Del. quantity cm3/  
1000H.: 7,0...9,0  
KSB solenoid-operated  
valve volt: 12,0

Full-load speed regulation:

Speed 1/min: 2500  
Del. quantity cm3/  
1000H: 28,0...30,0  
KSB solenoid-operated  
valve volt: 12,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 70,0  
KSB solenoid-operated  
valve volt: 12,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,7...1,9  
mm: (1,0...2,6) \*

KSB solenoid-operated  
valve volt: -

2nd speed 1/min: 1200  
TD travel mm: 1,4...3,4 \*  
mm: -

KSB solenoid-operated  
valve volt: -

3rd speed 1/min: 1200  
TD travel mm: 1,1...1,9  
mm: (0,8...2,2)

KSB solenoid-operated  
valve volt: 12,0

4th speed 1/min: 1500  
TD travel mm: 2,5...3,3  
mm: (2,2...3,6)

KSB solenoid-operated  
valve volt: 12,0  
5th speed 1/min: 1800  
TD travel mm: 4,2...4,6  
mm: (3,7...5,1)

KSB solenoid-operated  
valve volt: 12,0  
6th speed 1/min: 2250  
TD travel mm: 6,4...7,2  
mm: (6,1...7,5)

KSB solenoid-operated  
valve volt: 12,0

#### Supply-pump pressure characteristic:

1st speed 1/min: 1000  
Supply-pump  
pressure bar: 5,3...5,9

KSB solenoid-operated  
valve volt: 12,0

2nd speed 1/min: 1000

Supply-pump  
pressure bar: 5,3...5,9

KSB solenoid-operated  
valve volt: 12,0

3rd speed 1/min: 1800

Supply-pump  
pressure bar: 6,7...7,3

KSB solenoid-operated  
valve volt: 12,0

4th speed 1/min: 2250

Supply-pump  
pressure bar: 7,5...8,1

KSB solenoid-operated  
valve volt: 12,0

#### Overflow quantity at overflow valve:

1st speed 1/min: 450  
KSB solenoid-operated  
valve volt: 12,0  
Overflow : 72...116  
quantity cm<sup>3</sup>/10s: (57...131)

2nd speed 1/min: 2250

KSB solenoid-operated  
valve volt: 12,0

Overflow : 55...111  
quantity cm<sup>3</sup>/10s: (40...126)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 2600  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -

2nd speed 1/min: 2500

KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 28,0...30,0  
1000H.: (25,0...33,0)

3rd speed 1/min: 2250

KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 53,5...58,5  
1000H.: (52,0...60,0)

4th speed 1/min: 1000

KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 47,5...48,5  
1000H.: (45,0...51,0)

5th speed 1/min: 450

KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 32,0...33,0  
1000H.: (28,5...36,5)

#### Zero delivery (stop):

#### Electr. shutoff:

Speed 1/min: 400  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 400  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 7,0...9,0  
1000H.: (4,0...12,0)  
2nd speed 1/min: 500  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: 1,5...7,5  
1000H.: (0,5...8,5)

#### Automatic starting fuel delivery:

1st speed 1/min: 100  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 70,0

2nd speed 1/min: 400  
KSB solenoid-operated  
valve volt: 12,0  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H: 50,0

#### Shutoff electromagnet:

Cut-in

min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4

KF mm : K-0T

MS mm : 1,1...1,5

XK mm : 20,0...22,0

XL mm : 10,5...13,9

Remarks:

\* Unscrew KSB ball valve 2 mm

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA  
Edition : 10.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/11F1800 L363  
Type number : 0 460 416 064  
  
Customer-specific information  
Customer : VM  
  
Engine : HR 694 HJ/10

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0.35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 000  
  
Opening  
pressure bar : 147...150  
  
Test inj. tubing : 1 680 750 017  
  
Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840  
  
Start of delivery  
Prestroke mm : 0,2  
(from BDC) : +-0,02 (0,04)

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value mm: 3,8...4,2

### Supply-pump pressure:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value bar: 6,1...6,7

### Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 82,5...83,5  
Dispersion cm<sup>3</sup>/ : 3,5  
1000H.: -

### Full-load del. w/out charge press.:

Speed 1/min : 600  
Del. quantity cm<sup>3</sup>/  
1000H.: 69,0...70,0

### Low-idle speed regulation:

Speed 1/min: 450  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 21,0...25,0  
Dispersion cm<sup>3</sup>/ : 3,5  
1000H.: -

### Full-load speed regulation:

Speed 1/min: 2000  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 52,0...58,0

### Start:

Speed 1/min: 100  
Charge press. hPa: -  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 55,0

### Load-dependent start of delivery:

Speed 1/min: 1500  
Charge press. hPa: -

Inspection-pump test specifications  
Test specifications in parentheses

### Timing-device characteristic:

1st speed 1/min: 1000  
Charge press. hPa: 1000  
TD travel mm: 1,4...2,2  
mm: (1,1...2,5)  
2nd speed 1/min: 1500  
Charge press. hPa: 1000  
TD travel mm: 3,8...4,2  
mm: (3,3...4,7)  
3rd speed 1/min: 1800  
Charge press. hPa: 1000

TD travel mm: 4,9...5,7  
mm: (4,6...6,0)

#### Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
Supply-pump pressure bar: 3,0...3,6  
2nd speed 1/min: 1500  
Charge press. hPa: 1000  
Supply-pump pressure bar: 6,1...6,7  
3rd speed 1/min: 1800  
Charge press. hPa: 1000  
Supply-pump pressure bar: 7,1...7,7

#### Overflow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: 1000  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1800  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 600\*  
Charge-air pressure-setting point hPa: 400  
LDA stroke mm: 5,2  
Del.quantity cm<sup>3</sup>/: 69,0...70,0  
1000H.: (67,0...72,0)  
2nd speed 1/min: 2130  
Charge press. hPa: 1000  
Del.quantity cm<sup>3</sup>/: 0,0...8,0  
1000H.: -  
3rd speed 1/min: 2000  
Charge press. hPa: 1000  
Del.quantity cm<sup>3</sup>/: 52,0...58,0  
1000H.: (51,0...59,0)  
4th speed 1/min: 1800  
Charge press. hPa: 1000  
Del.quantity cm<sup>3</sup>/: 76,0...79,0  
1000H.: (75,0...80,0)  
5th speed 1/min: 1500  
Charge press. hPa: 1000  
Del.quantity cm<sup>3</sup>/: 82,5...83,5  
1000H.: (81,0...85,0)  
6th speed 1/min: 600  
Charge press. hPa: 1000  
Del.quantity cm<sup>3</sup>/: 84,0...88,0  
1000H.: -  
7th speed 1/min: 600  
Charge press. hPa: 400

Del.quantity cm<sup>3</sup>/: 69,0...70,0  
1000H.: (67,0...72,0)  
8th speed 1/min: 600  
Charge press. hPa: -  
Del.quantity cm<sup>3</sup>/: 49,0...50,0  
1000H.: (47,0...52,0)

#### Zero delivery (stop):

#### Mech. shutoff:

Speed 1/min: 1800  
Del.quantity cm<sup>3</sup>/: 0..3  
1000H.: -

#### Electr. shutoff:

Speed 1/min: 450  
ELAB volt: 12,0  
Del.quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 450  
Del.quantity cm<sup>3</sup>/: 21,0...25,0  
1000H.: (19,0...27,0)  
2nd speed 1/min: 500  
Del.quantity cm<sup>3</sup>/: 16,5...21,5  
1000H.: (14,5...23,5)  
3rd speed 1/min: 600  
Del.quantity cm<sup>3</sup>/: 1,0...7,0  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 300  
Charge press. hPa: -  
Del.quantity cm<sup>3</sup>/: -  
ind. 1000H: 66,0  
2nd speed 1/min: 400  
Charge press. hPa: -  
Del.quantity cm<sup>3</sup>/: -  
max. 1000H : 55,0

#### Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

#### Mounting and assembly dimensions:

#### Designation

K	mm	:	-
KF	mm	:	5,6...6,0
MS	mm	:	0,8...1,2
XK	mm	:	20,0...22,0
XL	mm	:	9,7...13,1

Pushing electromagnet.

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 4,1 H1  
Edition : 18.07.89  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 6/11F1900 L218-8  
Type number : 0 460 416 065

Customer-specific information  
Customer : PENTA

Engine : TAMD 41B

Power k: 132  
Speed 1/mi: -

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 022

Opening  
pressure bar : 130...133

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : 0,3  
(from BDC): +0,02 (0,04)

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Setting value mm: 2,0...2,4

Supply-pump pressure:

Speed 1/min: 1200

D05

Charge press. hPa: 1000  
Setting value bar: 5,9...6,5

Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm3/  
1000H.: 88,0...89,0  
Dispersion cm3/ : 5,0  
1000H : -

Full-load del. w/out charge press.:

Speed 1/min : 650  
Del. quantity cm3/  
1000H.: 58,5...59,5

Low-idle speed regulation:

Speed 1/min: 325  
Charge press. hPa: -  
Del. quantity cm3/  
1000H.: 25,0...29,0

Full-load speed regulation:

Speed 1/min: 2050  
Charge press. hPa: 1000  
Del. quantity cm3/  
1000H: 67,0...73,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 80,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000  
Charge press. hPa: 1000  
TD travel mm: 0,6...1,6  
mm: (0,4...1,8)

2nd speed 1/min: 1200  
Charge press. hPa: 1000  
TD travel mm: 2,0...2,4  
mm: (1,5...2,9)

3rd speed 1/min: 1700  
Charge press. hPa: 1000  
TD travel mm: 3,5...4,3  
mm: (3,2...4,6)

4th speed 1/min: 1900  
Charge press. hPa: 1000  
TD travel mm: 3,7...4,5  
mm: -

### Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4,2...4,8  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump pressure bar: 5,5...6,1  
3rd speed 1/min: 1200  
Charge press. hPa: 1000  
Supply-pump pressure bar: 5,9...6,5  
4th speed 1/min: 1900  
Charge press. hPa: 1000  
Supply-pump pressure bar: 7,4...8,0

### Overflow quantity at overflow valve:

1st speed 1/min: 650  
Charge press. hPa: 1000  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1900  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

### Delivery-quant. and breakaway char.:

1st speed 1/min: 800\*  
Charge-air pressure-setting point hPa: 200  
LDA stroke mm: 4,5  
Del. quantity cm<sup>3</sup>/: 72,5...73,5  
1000H.: (70,0...76,0)  
2nd speed 1/min: 2200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -  
3rd speed 1/min: 2150  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 4,5...11,5  
1000H.: -  
4th speed 1/min: 2050  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 67,0...73,0  
1000H.: (64,0...76,0)  
5th speed 1/min: 1900  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 79,0...83,0  
1000H.: (77,0...85,0)  
6th speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 88,0...89,0  
1000H.: (86,2...90,8)  
7th speed 1/min: 1200

Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 92,0...95,0  
1000H.: (90,5...96,5)  
8th speed 1/min: 800  
Charge press. hPa: 200  
Del. quantity cm<sup>3</sup>/: 72,5...73,5  
1000H.: (70,0...76,0)  
9th speed 1/min: 800  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 78,5...81,5  
1000H.: (77,0...83,0)  
10th speed 1/min: 650  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 58,5...59,5  
1000H.: (56,0...62,0)

### Zero delivery (stop):

### Mech. shutoff:

Speed 1/min: 1900  
Del. quantity cm<sup>3</sup>/: 0..3  
1000H.: -

### Electr. shutoff:

Speed 1/min: 325  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

### Idle delivery:

1st speed 1/min: 325  
Del. quantity cm<sup>3</sup>/: 25,0...29,0  
1000H.: (22,0...32,0)  
2nd speed 1/min: 400  
Del. quantity cm<sup>3</sup>/: 5,0...11,0  
1000H.: (3,5...12,5)  
3rd speed 1/min: 480  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -

### Automatic starting fuel delivery:

1st speed 1/min: 300  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 70,0  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 70,0

### Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

### Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	K-0T
MS	mm	:	0,6...1,0
XK	mm	:	21,8...23,8
XL	mm	:	11,2...14,6

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 E6  
Edition : 13.07.89  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1250 R226-2  
Type number : 0 460 424 024  
Customer Part-No. : 3 908 192

Customer-specific information  
Customer : CDC

Engine : 4 BT 390 IND

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,8  
mm :  $\pm 0,02$  (0,06)

Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

Setting value mm: 2,0...2,4

Supply-pump pressure:

Speed 1/min: 900  
Setting value bar: 4,6...5,2

Full-load del. w/out charge press.:

Speed 1/min : 1100  
Del. quantity cm<sup>3</sup>/  
1000H.: 68,5...69,5  
Dispersion cm<sup>3</sup>/  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 335  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...14,0  
Dispersion cm<sup>3</sup>/  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1290  
Del. quantity cm<sup>3</sup>/  
1000H.: 58,0...64,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750  
TD travel mm: 0,8...1,6  
mm: (0,5...1,9)  
2nd speed 1/min: 900  
TD travel mm: 2,0...2,4  
mm: (1,5...2,9)  
3rd speed 1/min: 1100  
TD travel mm: 2,9...3,7  
mm: (2,6...4,0)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,7...3,3  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3,9...4,5  
3rd speed 1/min: 900

Supply-pump  
pressure bar: 4,6...5,2  
4th speed 1/min: 1100  
Supply-pump  
pressure bar: 5,4...6,0

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1250  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1450  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1400  
Del. quantity cm3/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1360  
Del. quantity cm3/: 15,0...55,0  
1000H.: -  
4th speed 1/min: 1290  
Del. quantity cm3/: 58,0...64,0  
1000H.: (55,0...67,0)  
5th speed 1/min: 1250  
Del. quantity cm3/: 66,5...69,5  
1000H.: (65,0...71,0)  
6th speed 1/min: 1100  
Del. quantity cm3/: 68,5...69,5  
1000H.: (66,0...72,0)  
7th speed 1/min: 750  
Del. quantity cm3/: 73,0...77,0  
1000H.: (71,0...79,0)  
8th speed 1/min: 500  
Del. quantity cm3/: 74,0...82,0  
1000H.: (72,0...84,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250  
Del. quantity cm3/: 0...3  
1000H.: -

Electr. shutoff:

Speed 1/min: 335  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 335

Del. quantity cm3/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 500  
Del. quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm3/: -  
ind. 1000H.: 75,0

2nd speed 1/min: 300  
Del. quantity cm3/: -  
max. 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	0,8...1,2
SVS max.	mm	:	4,8
XK	mm	:	18,8...20,8
XL	mm	:	11,5...14,9

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3,9 L1  
Edition : 12.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/12F1100 R 226-7  
Type number : 0 460 424 046

Customer-specific information  
Customer : CASE

Engine : 4 BT-390 580K

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,8  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900  
Setting value mm: 2,3...2,7

Supply-pump pressure:

Speed 1/min: 900  
Setting value bar: 4,1...4,7

Full-load del. w/out charge press.:

Speed 1/min : 750  
Del.quantity cm3/  
1000H.: 63,5...64,5  
Dispersion cm3/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 475  
Del.quantity cm3/  
1000H.: 6,0...12,0  
Dispersion cm3/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1150  
Del.quantity cm3/  
1000H: 42,0...48,0

Start.

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 650  
TD travel mm: 0,7...1,5  
mm: (0,4...1,8)  
2nd speed 1/min: 900  
TD travel mm: 2,3...2,7  
mm: (1,8...3,2)  
3rd speed 1/min: 1100  
TD travel mm: 3,1...3,9  
mm: (2,8...4,2)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,4...3,0  
2nd speed 1/min: 900  
Supply-pump  
pressure bar: 4,1...4,7  
3rd speed 1/min: 1100

Supply-pump  
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1100  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1220  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1180  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: -  
4th speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/: 42,0...48,0  
1000H.: (39,0...51,0)  
5th speed 1/min: 1100  
Del. quantity cm<sup>3</sup>/: 61,5...62,5  
1000H.: (59,0...65,0)  
6th speed 1/min: 900  
Del. quantity cm<sup>3</sup>/: 60,8...63,8  
1000H.: (58,8...65,8)  
7th speed 1/min: 750  
Del. quantity cm<sup>3</sup>/: 63,5...64,5  
1000H.: (61,0...67,0)  
8th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 61,0...69,0  
1000H.: (59,0...71,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100  
Del. quantity cm<sup>3</sup>/: 0...3  
1000H.: -

Electr. shutoff:

Speed 1/min: 475  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 475  
Del. quantity cm<sup>3</sup>/: 6,0...12,0  
1000H.: (4,0...14,0)  
2nd speed 1/min: 550

Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 70,0

2nd speed 1/min: 240  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H: 70,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : -  
KF mm : 5,0...5,4  
MS mm : 1,1...1,5  
SVS max. mm : 3,2

Remarks:  
: CASE # 391 4487

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 P  
Edition : 10.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/12F1250 R359-1  
Type number : 0 460 424 055

Customer-specific information  
Customer : CDC

Engine : 4 BT

Power k: 79  
Speed 1/mi: 2500

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 A  
Edition : 13.07.89  
replaces : 07.84  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R159-2  
Type number : 0 460 426 042

Customer-specific information  
Customer : CDC

Engine : 6 BT

Power k: 106  
Speed 1/mi: -

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC): +0,02 (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Setting value mm: 3,1...3,5

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,6...4,2

Full-load del. w/out charge press.:

Speed 1/min : 900  
Del.quantity cm3/  
1000H.: 82,0...83,0  
Dispersion cm3/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm3/  
1000H.: 22,0...28,0  
Dispersion cm3/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1220  
Del.quantity cm3/  
1000H.: 34,0...40,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 100,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,2...2,0  
mm: (0,9...2,3)  
2nd speed 1/min: 750  
TD travel mm: 3,1...3,5  
mm: (2,6...4,0)  
3rd speed 1/min: 1100  
TD travel mm: 5,1...5,9  
mm: (4,8...6,2)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,6...3,2  
2nd speed 1/min: 750

Supply-pump  
pressure bar: 3,6...4,2  
3rd speed 1/min: 1100  
Supply-pump  
pressure bar: 5,0...5,6

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1100  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1280  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1220  
Del. quantity cm3/: 34,0...40,0  
1000H.: (31,0...43,0)  
3rd speed 1/min: 1100  
Del. quantity cm3/: 75,0...78,0  
1000H.: (73,5...79,5)  
4th speed 1/min: 900  
Del. quantity cm3/: 82,0...83,0  
1000H.: (79,5...85,5)  
5th speed 1/min: 500  
Del. quantity cm3/: 77,0...85,0  
1000H.: (75,0...87,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm3/: 22,0...28,0  
1000H.: (20,0...30,0)  
2nd speed 1/min: 450  
Del. quantity cm3/: 0,0...3,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130

Del. quantity cm3/: -  
ind. 1000H: 100,0

2nd speed 1/min: 200  
Del. quantity cm3/: -  
max. 1000H: 85,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,3...1,7
SVS max.	mm	:	1,5
XK	mm	:	20,2...22,2
XL	mm	:	10,7...14,1

Remarks:

: C.D.C. # 390 3366

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 A1  
Edition : 13.07.89  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R159-2  
Type number : 0 460 426 042  
Customer Part-No. : 3 917 664

Customer-specific information  
Customer : CDC

Engine : 6 BT

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) : +0,02 (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

D15

Setting value mm: 3,1...3,5

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,6...4,2

Full-load del. w/out charge press.:

Speed 1/min : 900  
Del.quantity cm3/  
1000H.: 82,0...83,0  
Dispersion cm3/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm3/  
1000H.: 22,0...28,0  
Dispersion cm3/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1220  
Del.quantity cm3/  
1000H: 34,0...40,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 100,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,2...2,0  
mm: (0,9...2,3)  
2nd speed 1/min: 750  
TD travel mm: 3,1...3,5  
mm: (2,6...4,0)  
3rd speed 1/min: 1100  
TD travel mm: 5,1...5,9  
mm: (4,8...6,2)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,6...3,2  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3,6...4,2  
3rd speed 1/min: 1100

Supply-pump  
pressure bar: 5,0...5,6

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1100  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1280  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1220  
Del. quantity cm<sup>3</sup>/: 34,0...40,0  
1000H.: (31,0...43,0)  
3rd speed 1/min: 1100  
Del. quantity cm<sup>3</sup>/: 75,0...78,0  
1000H.: (73,5...79,5)  
4th speed 1/min: 900  
Del. quantity cm<sup>3</sup>/: 82,0...83,0  
1000H.: (79,5...85,5)  
5th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 77,0...85,0  
1000H.: (75,0...87,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100  
Del. quantity cm<sup>3</sup>/: 0...3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 22,0...28,0  
1000H.: (20,0...30,0)  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 100,0

2nd speed 1/min: 200  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 85,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,3...1,7
SVS max.	mm	:	1,5
XK	mm	:	20,2...22,2
XL	mm	:	10,7...14,1

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 B1  
Edition : 13.07.89  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1150 R159-3  
Type number : D 460 426 043  
Customer Part-No. : 3 917 663

Customer-specific information  
Customer : CDC

Engine : 6 BT

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) : +0,02 (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

Setting value mm: 4,3...4,7

Supply-pump pressure:

Speed 1/min: 900  
Setting value bar: 4,4...5,0

Full-load del. w/out charge press.:

Speed 1/min : 900  
Del.quantity cm3/  
1000H.: 81,5...82,5  
Dispersion cm3/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm3/  
1000H.: 18,5...24,5  
Dispersion cm3/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1230  
Del.quantity cm3/  
1000H: 30,0...36,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 100,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,2...2,0  
mm: (0,9...2,3)  
2nd speed 1/min: 900  
TD travel mm: 4,3...4,7  
mm: (3,8...5,2)  
3rd speed 1/min: 1150  
TD travel mm: 5,6...6,4  
mm: (5,3...6,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,7...3,3  
2nd speed 1/min: 900  
Supply-pump  
pressure bar: 4,3...5,0  
3rd speed 1/min: 1150

Supply-pump  
pressure bar: 5,4...6,0

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1150  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1290  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1230  
Del. quantity cm3/: 30,0...36,0  
1000H.: (27,0...39,0)  
3rd speed 1/min: 1150  
Del. quantity cm3/: 74,0...77,0  
1000H.: (72,5...78,5)  
4th speed 1/min: 900  
Del. quantity cm3/: 81,5...82,5  
1000H.: (79,0...85,0)  
5th speed 1/min: 500  
Del. quantity cm3/: 78,5...86,5  
1000H.: (76,5...88,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 360  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm3/: 18,5...24,5  
1000H.: (16,5...26,5)  
2nd speed 1/min: 450  
Del. quantity cm3/: 0,0...3,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm3/: -  
ind. 1000H: 100,0

2nd speed 1/min: 200  
Del. quantity cm3/: -  
max. 1000H : 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,3...1,7
SVS max.	mm	:	1,5

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 D3  
Edition : 13.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/12F1050 R159-4  
Type number : 0 460 426 044  
Customer Part-No. : 3 917 665

Customer-specific information  
Customer : CDC

Engine : 6 BT

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) : +0,02 (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm : +0,02 (0,04)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

Setting value mm: 3,6...4,0

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 900  
Del.quantity cm3/  
1000H.: 83,0...84,0  
Dispersion cm3/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm3/  
1000H.: 22,0...28,0

Full-load speed regulation:

Speed 1/min: 1125  
Del.quantity cm3/  
1000H.: 37,0...43,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 100,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,8...2,6  
mm: (1,5...2,9)  
2nd speed 1/min: 750  
TD travel mm: 3,6...4,0  
mm: (3,1...4,5)  
3rd speed 1/min: 900  
TD travel mm: 4,6...5,4  
mm: (4,3...5,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 3,0...3,6  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 4,2...4,8  
3rd speed 1/min: 900  
Supply-pump  
pressure bar: 4,7...5,3

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1050  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1175  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1125  
Del. quantity cm<sup>3</sup>/: 37,0...43,0  
1000H.: (34,0...46,0)  
3rd speed 1/min: 1050  
Del. quantity cm<sup>3</sup>/: 78,5...81,5  
1000H.: (77,0...83,0)  
4th speed 1/min: 900  
Del. quantity cm<sup>3</sup>/: 83,0...84,0  
1000H.: (80,5...86,5)  
5th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 82,0...90,0  
1000H.: (80,0...92,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050  
Del. quantity cm<sup>3</sup>/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 22,0...28,0  
1000H.: (20,0...30,0)  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 100,0  
2nd speed 1/min: 200

Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 85,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,3...1,7

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 P2  
Edition : 14.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/12F125D R159-16  
Type number : 0 460 426 066  
Customer Part-No. : 3 908 214

Customer-specific information  
Customer : CDC

Engine : 6 BT 5.9 IND

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) : +0,02 (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 1100  
Del. quantity cm3/  
1000H.: 73,0...74,0  
Dispersion cm3/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 360  
Del. quantity cm3/  
1000H.: 8,0...14,0  
Dispersion cm3/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300  
Del. quantity cm3/  
1000H.: 51,0...57,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 60,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,5...2,3  
mm: (1,2...2,6)  
2nd speed 1/min: 750  
TD travel mm: 3,4...3,8  
mm: (2,9...4,3)  
3rd speed 1/min: 1100  
TD travel mm: 5,2...6,0  
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,4...3,0  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3,5...4,1  
3rd speed 1/min: 1100

Supply-pump  
pressure bar: 4,8...5,4

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1250  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1400  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1390  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1350  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: -  
4th speed 1/min: 1300  
Del. quantity cm<sup>3</sup>/: 51,0...57,0  
1000H.: (48,0...60,0)  
5th speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/: 70,0...73,0  
1000H.: (68,5...74,5)  
6th speed 1/min: 1100  
Del. quantity cm<sup>3</sup>/: 73,0...74,0  
1000H.: (70,5...76,5)  
7th speed 1/min: 900  
Del. quantity cm<sup>3</sup>/: 74,5...78,5  
1000H.: -  
8th speed 1/min: 750  
Del. quantity cm<sup>3</sup>/: 76,0...80,0  
1000H.: (74,0...82,0)  
9th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 64,0...72,0  
1000H.: (62,0...74,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/: 0...3  
1000H.: -

Electr. shutoff:

Speed 1/min: 360  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 360

D22

Del. quantity cm<sup>3</sup>/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 70,0

2nd speed 1/min: 240  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 70,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation	
K	mm : -
KF	mm : 5,0...5,4
MS	mm : 0,6...1,0
SVS max.	mm : 1,5
XK	mm : 18,8...20,8
XL	mm : 11,1...14,5

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 T4  
Edition : 11.07.89  
replaces : 11.86  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R225-9  
Type number : 0 460 426 075

Customer-specific information  
Customer : CDC

Engine : 6 BT-5.9 CA

Power k: 93  
Speed 1/mi: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC):  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 750  
Del. quantity cm<sup>3</sup>/  
1000H.: 62,0...63,0  
Dispersion cm<sup>3</sup>/  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm<sup>3</sup>/  
1000H.: 10,0...12,0  
Dispersion cm<sup>3</sup>/  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/  
1000H.: 39,0...45,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,5...2,3  
mm: (1,2...2,6)  
2nd speed 1/min: 750  
TD travel mm: 3,4...3,8  
mm: (2,9...4,3)  
3rd speed 1/min: 1100  
TD travel mm: 5,2...6,0  
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,4...3,0  
2nd speed 1/min: 750

Supply-pump  
pressure bar: 3,5...4,1  
3rd speed 1/min: 1100  
Supply-pump  
pressure bar: 4,8...5,4

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1100  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1250  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1200  
Del. quantity cm3/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1170  
Del. quantity cm3/: 15,0...55,0  
1000H.: -  
4th speed 1/min: 1150  
Del. quantity cm3/: 39,0...45,0  
1000H.: (36,0...48,0)  
5th speed 1/min: 1100  
Del. quantity cm3/: 57,5...60,5  
1000H.: (56,0...62,0)  
6th speed 1/min: 900  
Del. quantity cm3/: 61,5...64,5  
1000H.: (59,5...66,5)  
7th speed 1/min: 750  
Del. quantity cm3/: 62,0...63,0  
1000H.: (59,5...65,5)  
8th speed 1/min: 500  
Del. quantity cm3/: 57,0...65,0  
1000H.: -

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375

D24

Del. quantity cm3/: 10,0...12,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 500  
Del. quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm3/: -  
ind. 1000H: 70,0

2nd speed 1/min: 300  
Del. quantity cm3/: -  
max. 1000H : 70,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,2...1,6
SVS max.	mm	: 1,7
XK	mm	: 18,8...20,8
XL	mm	: 12,1...15,5

Remarks:

: C.D.C. # 390 8207  
Tractive electromagnet.

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L2  
Edition : 11.07.89  
replaces : 10.12.86  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1150 R173-5  
Type number : 0 460 426 086

Customer-specific information  
Customer : CDC

Engine : 6 BTA - 590 I

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,85  
mm :  $\pm 0,02$  (0,06)

Outlet : 0

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Charge press. hPa: 1000

D25

Setting value mm: 1,6...2,0

Supply-pump pressure:

Speed 1/min: 750  
Charge press. hPa: 1000  
Setting value bar: 3,3...3,9

Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 82,5...83,5  
Dispersion cm<sup>3</sup>/  
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 67,5...68,5

Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm<sup>3</sup>/  
1000H.: 9,0...13,0  
Dispersion cm<sup>3</sup>/  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 64,0...70,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
TD travel mm: 0,5...1,3  
mm: (0,2...1,6)

2nd speed 1/min: 750  
Charge press. hPa: 1000  
TD travel mm: 1,6...2,0  
mm: (1,1...2,5)

3rd speed 1/min: 1150  
Charge press. hPa: 1000

TD travel      mm: 2,8...3,6  
                 mm: (2,5...3,9)

Supply-pump pressure characteristic:

1st speed      1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure      bar: 2,6...3,2  
2nd speed      1/min: 750  
Charge press. hPa: 1000  
Supply-pump  
pressure      bar: 3,3...3,9  
3rd speed      1/min: 1150  
Charge press. hPa: 1000  
Supply-pump  
pressure      bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed      1/min: 500  
Charge press. hPa: -  
Overflow      : 41...83  
quantity cm3/10s: (26...98)  
2nd speed      1/min: 1150  
Charge press. hPa: 1000  
Overflow      : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed      1/min: 700\*  
Charge-air pressure-setting  
point      hPa: 400  
Del. quantity cm3/: 77,5...78,5  
                 1000H.: (73,5...82,5)  
2nd speed      1/min: 1300  
Charge press. hPa: 1000  
Del. quantity cm3/: 0,0...3,0  
                 1000H.: -  
3rd speed      1/min: 1270  
Charge press. hPa: 1000  
Del. quantity cm3/: 0,0...15,0  
                 1000H.: -  
4th speed      1/min: 1230  
Charge press. hPa: 1000  
Del. quantity cm3/: 15,0...55,0  
                 1000H.: -  
5th speed      1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm3/: 64,0...70,0  
                 1000H.: (61,0...73,0)  
6th speed      1/min: 1150  
Charge press. hPa: 1000  
Del. quantity cm3/: 76,0...79,0  
                 1000H.: (74,5...80,5)  
7th speed      1/min: 900  
Charge press. hPa: 1000  
Del. quantity cm3/: 81,0...84,0  
                 1000H.: (79,5...85,5)

8th speed      1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm3/: 82,5...83,5  
                 1000H.: (80,0...86,0)  
9th speed      1/min: 700  
Charge press. hPa: 400  
Del. quantity cm3/: 77,5...78,5  
                 1000H.: (73,5...82,5)  
10th speed      1/min: 500  
Charge press. hPa: 1000  
Del. quantity cm3/: 82,0...90,0  
                 1000H.: -  
11th speed      1/min: 500  
Charge press. hPa: -  
Del. quantity cm3/: 67,5...68,5  
                 1000H.: (63,5...72,5)

Zero delivery (stop):

Mech. shutoff:

Speed          1/min: 1150  
Del. quantity cm3/: 0..3  
                 1000H.: -

Electr. shutoff:

Speed          1/min: 375  
ELAB          volt: -  
Del. quantity cm3/: 0,0...3,0  
max.          1000H.: -

Idle delivery:

1st speed      1/min: 375  
Del. quantity cm3/: 9,0...13,0  
                 1000H.: (6,0...16,0)  
2nd speed      1/min: 500  
Del. quantity cm3/: 0,0...4,0  
                 1000H.: -

Automatic starting fuel delivery:

1st speed      1/min: 280  
Del. quantity cm3/: -  
ind.          1000H: 75,0  
2nd speed      1/min: 440  
Del. quantity cm3/: -  
max.          1000H : 80,0

Shutoff electromagnet:

Cut-in  
min. voltage      : 10,0  
Rated voltage     : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,0...1,4
SVS max.	mm	:	1,6
XK	mm	:	18,8...20,8
XL	mm	:	11,6...15,0

Remarks:

: C.D.C. # 390 4726

\* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L9  
Edition : 11.07.89  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1150 R173-5  
Type number : 0 460 426 086  
Customer Part-No. : 3 911 244

Customer-specific information  
Customer : CDC

Engine : 6 BTA - 590 I

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,85  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

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Charge press. hPa: 1000  
Setting value mm: 1,6...2,0

Supply-pump pressure:

Speed 1/min: 750  
Charge press. hPa: 1000  
Setting value bar: 3,3...3,9

Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 82,5...83,5  
Dispersion cm<sup>3</sup> : 4,0  
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 67,5...68,5

Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm<sup>3</sup>/  
1000H.: 9,0...13,0  
Dispersion cm<sup>3</sup> : 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 64,0...70,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
TD travel mm: 0,5...1,3  
mm: (0,2...1,6)

2nd speed 1/min: 750  
Charge press. hPa: 1000  
TD travel mm: 1,6...2,0  
mm: (1,1...2,5)

3rd speed 1/min: 1150

Charge press. hPa: 1000  
TD travel mm: 2,8...3,6  
mm: (2,5...3,9)

#### Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure bar: 2,6...3,2  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump pressure bar: 3,3...3,9  
3rd speed 1/min: 1150  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4,9...5,5

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Overflow quantity cm<sup>3</sup>/10s: (41...83)  
2nd speed 1/min: 1150  
Charge press. hPa: 1000  
Overflow quantity cm<sup>3</sup>/10s: (55...138)  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 700\*  
Charge-air pressure-setting point hPa: 400  
Del. quantity cm<sup>3</sup>/: 77,5...78,5  
1000H.: (73,5...82,5)  
2nd speed 1/min: 1300  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
3rd speed 1/min: 1270  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -  
4th speed 1/min: 1230  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: -  
5th speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 64,0...70,0  
1000H.: (61,0...73,0)  
6th speed 1/min: 1150  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 76,0...79,0  
1000H.: (74,5...80,5)  
7th speed 1/min: 900  
Charge press. hPa: 1000

Del. quantity cm<sup>3</sup>/: 81,0...84,0  
1000H.: (79,5...85,5)  
8th speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 82,5...83,5  
1000H.: (80,0...86,0)  
9th speed 1/min: 700  
Charge press. hPa: 400  
Del. quantity cm<sup>3</sup>/: 77,5...78,5  
1000H.: (73,5...82,5)  
10th speed 1/min: 500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 82,0...90,0  
1000H.: -  
11th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 67,5...68,5  
1000H.: (63,5...72,5)

#### Zero delivery (stop):

##### Mech. shutoff:

Speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/: 0..3  
1000H.: -

##### Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 9,0...13,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 280  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 75,0  
2nd speed 1/min: 440  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 80,0

#### Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

#### Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,0...1,4
SVS max.	mm	:	1,6
XK	mm	:	18,8...20,8
XL	mm	:	11,6...15,0

Remarks:

\* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L7  
Edition : 12.07.89  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R173-7  
Type number : 0 460 426 089  
Customer Part-No. : 3 910 793

Customer-specific information  
Customer : CDC

Engine : 6 BTA - 590 I

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) : +0,02 (0,04)

Start of delivery block  
Piston stroke mm : 1,85  
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

Charge press. hPa: 1000  
Setting value mm: 2,0...2,4

Supply-pump pressure:

Speed 1/min: 900  
Charge press. hPa: 1000  
Setting value bar: 4,3...4,9

Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 68,5...69,5  
Dispersion cm<sup>3</sup>/  
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 39,0...40,0

Low-idle speed regulation:

Speed 1/min: 375  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 9,0...13,0  
Dispersion cm<sup>3</sup>/  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1140  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 46,0...52,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 60,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 700  
Charge press. hPa: 1000  
TD travel mm: 0,8...1,6  
mm: (0,5...1,9)  
2nd speed 1/min: 900  
Charge press. hPa: 1000  
TD travel mm: 2,0...2,4  
mm: (1,5...2,9)

3rd speed 1/min: 1050  
Charge press. hPa: 1000  
TD travel mm: 2,4...3,2  
mm: (2,1...3,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure bar: 2,6...3,2  
2nd speed 1/min: 900  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4,3...4,9  
3rd speed 1/min: 1050  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1050  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700\*  
Charge-air pressure-setting point hPa: 400  
LDA stroke mm: 5,8  
Del. quantity cm<sup>3</sup>/: 61,5...62,5  
1000H.: (58,0...66,0)  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
3rd speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -  
4th speed 1/min: 1160  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: -  
5th speed 1/min: 1140  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 46,0...52,0  
1000H.: (43,0...55,0)  
6th speed 1/min: 1050  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 64,5...67,5  
1000H.: (63,0...69,0)  
7th speed 1/min: 900

Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 65,5...68,5  
1000H.: (64,0...70,0)  
8th speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 68,5...69,5  
1000H.: (66,0...72,0)  
9th speed 1/min: 700  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 61,5...62,5  
1000H.: (58,0...66,0)  
10th speed 1/min: 500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 65,0...73,0  
1000H.: -  
11th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 39,0...40,0  
1000H.: (35,5...43,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050  
Del. quantity cm<sup>3</sup>/: 0...3  
1000H.: -

Elect. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 9,0...13,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 140  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H.: 60,0  
2nd speed 1/min: 240  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H.: 60,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,2...1,6
SVS max.	mm	:	2,4
XK	mm	:	20,2...22,2
XL	mm	:	11,2...14,6

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 S10  
Edition : 14.07.89  
replaces : -  
Calibrating oil : ISO 4113  
Injection pump : VE 6/12F1250 R225-14  
Type number : 0 460 426 092

Customer-specific information  
Customer : CDC

Engine : 6 BT

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 1100  
Del. quantity cm<sup>3</sup>/  
1000H.: 63,5...64,5

Low-idle speed regulation:

Speed 1/min: 345  
Del. quantity cm<sup>3</sup>/  
1000H.: 9,0...15,0

Full-load speed regulation:

Speed 1/min: 1320  
Del. quantity cm<sup>3</sup>/  
1000H.: 44,5...50,5

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 60,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,5...2,3  
mm: (1,2...2,6)  
2nd speed 1/min: 750  
TD travel mm: 3,4...3,8  
mm: (2,9...4,3)  
3rd speed 1/min: 1100  
TD travel mm: 5,2...6,0  
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,4...3,0  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3,5...4,1  
3rd speed 1/min: 1100  
Supply-pump  
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1250  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1450  
Del.quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1380  
Del.quantity cm3/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1330  
Del.quantity cm3/: 15,0...55,0  
1000H.: -  
4th speed 1/min: 1320  
Del.quantity cm3/: 44,5...50,5  
1000H.: (41,5...53,5)  
5th speed 1/min: 1250  
Del.quantity cm3/: 60,8...63,8  
1000H.: (59,3...65,3)  
6th speed 1/min: 1100  
Del.quantity cm3/: 63,5...64,5  
1000H.: (61,0...67,0)  
7th speed 1/min: 750  
Del.quantity cm3/: 64,0...68,0  
1000H.: (62,0...70,0)  
8th speed 1/min: 500  
Del.quantity cm3/: 65,0...73,0  
1000H.: (63,0...75,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250  
Del.quantity cm3/: 0...3  
1000H.: -

Electr. shutoff:

Speed 1/min: 345  
ELAB volt: -  
Del.quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 345  
Del.quantity cm3/: 9,0...15,0  
1000H.: (7,0...17,0)  
2nd speed 1/min: 500  
Del.quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 270  
Del.quantity cm3/: -  
ind. 1000H: 55,0

2nd speed 1/min: 450  
Del.quantity cm3/: -  
max. 1000H : 75,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,1...5,4
MS	mm	:	1,3...1,55
SVS max.	mm	:	1,2
XK	mm	:	20,2...22,2
XL	mm	:	10,8...14,2

Remarks:

: C.D.C. # 391 0791

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 S9  
Edition : 14.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/12F1250 R225-14  
Type number : 0 460 426 092  
Customer Part-No. : 3 910 791

Customer-specific information  
Customer : CDC

Engine : 6 BT

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) : +0,02 (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

E08

Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 1100  
Del.quantity cm3/  
1000H.: 63,5...64,5

Low-idle speed regulation:

Speed 1/min: 345  
Del.quantity cm3/  
1000H.: 9,0...15,0

Full-load speed regulation:

Speed 1/min: 1320  
Del.quantity cm3/  
1000H: 44,5...50,5

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 60,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,5...2,3  
mm: (1,2...2,6)  
2nd speed 1/min: 750  
TD travel mm: 3,4...3,8  
mm: (2,9...4,3)  
3rd speed 1/min: 1100  
TD travel mm: 5,2...6,0  
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,4...3,0  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3,5...4,1  
3rd speed 1/min: 1100  
Supply-pump  
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1250  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1450  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1380  
Del. quantity cm3/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1330  
Del. quantity cm3/: 15,0...55,0  
1000H.: -  
4th speed 1/min: 1320  
Del. quantity cm3/: 44,5...50,5  
1000H.: (41,5...53,5)  
5th speed 1/min: 1250  
Del. quantity cm3/: 60,8...63,8  
1000H.: (59,3...65,3)  
6th speed 1/min: 1100  
Del. quantity cm3/: 63,5...64,5  
1000H.: (61,0...67,0)  
7th speed 1/min: 750  
Del. quantity cm3/: 64,0...68,0  
1000H.: (62,0...70,0)  
8th speed 1/min: 500  
Del. quantity cm3/: 65,0...73,0  
1000H.: (63,0...75,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 345  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 345  
Del. quantity cm3/: 9,0...15,0  
1000H.: (7,0...17,0)  
2nd speed 1/min: 500  
Del. quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

E09

1st speed 1/min: 270  
Del. quantity cm3/: -  
ind. 1000H: 55,0  
2nd speed 1/min: 450  
Del. quantity cm3/: -  
max. 1000H : 75,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,1...5,4
MS	mm	:	1,3...1,55
SVS max.	mm	:	1,2
XK	mm	:	20,2...22,2
XL	mm	:	10,8...14,2

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L5  
Edition : 11.07.89  
replaces : 04.11.87  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R173-9  
Type number : 0 460 426 102

Customer-specific information  
Customer : CUMMINS

Engine : 6 BTA -590 IND.

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,85  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Charge press. hPa: 1000

E10

Setting value mm: 1,3...1,7

Supply-pump pressure:

Speed 1/min: 750  
Charge press. hPa: 1000  
Setting value bar: 3,2...3,8

Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 84,5...85,5  
Dispersion cm<sup>3</sup>/  
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 68,5...69,5

Low-idle speed regulation:

Speed 1/min: 375  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...14,0  
Dispersion cm<sup>3</sup>/  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H: 59,0...65,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
TD travel mm: 0,4...1,2  
mm: (0,1...1,5)  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
TD travel mm: 1,3...1,7  
mm: (0,8...2,2)  
3rd speed 1/min: 1050

Charge press. hPa: 1000  
TD travel mm: 2,0...2,8  
mm: (1,7...3,1)

#### Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure bar: 2,2...2,8  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump pressure bar: 3,2...3,8  
3rd speed 1/min: 1050  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4,5...5,1

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 700\*  
Charge-air pressure-setting point hPa: 400  
Del. quantity cm<sup>3</sup>/: 77,5...78,5  
1000H.: (74,0...82,0)  
2nd speed 1/min: 1400  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
3rd speed 1/min: 1370  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -  
4th speed 1/min: 1330  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: -  
5th speed 1/min: 1300  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 59,0...65,0  
1000H.: (56,0...68,0)  
6th speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 76,0...79,0  
1000H.: (74,5...80,5)  
7th speed 1/min: 1050  
Charge press. hPa: 1000

Del. quantity cm<sup>3</sup>/: 80,5...83,5  
1000H.: (78,5...85,5)  
8th speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 84,5...85,5  
1000H.: (82,0...88,0)  
9th speed 1/min: 700  
Charge press. hPa: 400  
Del. quantity cm<sup>3</sup>/: 77,5...78,5  
1000H.: (74,0...82,0)  
10th speed 1/min: 500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 84,0...92,0  
1000H.: -  
11th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 68,5...69,5  
1000H.: (65,0...73,0)

#### Zero delivery (stop):

##### Mech. shutoff:

Speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/: 0..3  
1000H.: -

##### Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 250  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 70,0  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 88,0

#### Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

#### Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,0...1,4
SVS max.	mm	: 2,3
XK	mm	: 18,8...20,8
XL	mm	: 13,8...17,2

Remarks:

: C.D.C. # 390 8219

\* Correction at adjusting nut (46)

Operate control lever after each  
manifold-pressure compensator pressure  
change.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L6  
Edition : 11.07.89  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R173-9  
Type number : 0 460 426 102  
Customer Part-No. : 3 907 643

Customer-specific information  
Customer : CUMMINS

Engine : 6 BTA -590 IND.

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) : +0,02 (0,04)

Start of delivery block  
Piston stroke mm: 1,85  
mm: +0,02 (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

Charge press. hPa: 1000  
Setting value mm: 1,3...1,7

Supply-pump pressure:

Speed 1/min: 750  
Charge press. hPa: 1000  
Setting value bar: 3,2...3,8

Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 84,5...85,5  
Dispersion cm<sup>3</sup> : 4,0  
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 68,5...69,5

Low-idle speed regulation:

Speed 1/min: 375  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...14,0  
Dispersion cm<sup>3</sup> : 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 59,0...65,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
TD travel mm: 0,4...1,2  
mm: (0,1...1,5)

2nd speed 1/min: 750  
Charge press. hPa: 1000  
TD travel mm: 1,3...1,7  
mm: (0,8...2,2)

3rd speed 1/min: 1050  
Charge press. hPa: 1000  
TD travel mm: 2,0...2,8  
mm: (1,7...3,1)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure bar: 2,2...2,8  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump pressure bar: 3,2...3,8  
3rd speed 1/min: 1050  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4,5...5,1

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700\*  
Charge-air pressure-setting point hPa: 400  
Del. quantity cm<sup>3</sup>/: 77,5...78,5  
1000H.: (74,0...82,0)  
2nd speed 1/min: 1400  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
3rd speed 1/min: 1370  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -  
4th speed 1/min: 1330  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: -  
5th speed 1/min: 1300  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 59,0...65,0  
1000H.: (56,0...68,0)  
6th speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 76,0...79,0  
1000H.: (74,5...80,5)  
7th speed 1/min: 1050  
Charge press. hPa: 1000

Del. quantity cm<sup>3</sup>/: 80,5...83,5  
1000H.: (78,5...85,5)  
8th speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 84,5...85,5  
1000H.: (82,0...88,0)  
9th speed 1/min: 700  
Charge press. hPa: 400  
Del. quantity cm<sup>3</sup>/: 77,5...78,5  
1000H.: (74,0...82,0)  
10th speed 1/min: 500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 84,0...92,0  
1000H.: -  
11th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 68,5...69,5  
1000H.: (65,0...73,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 250  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 70,0  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 88,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,0...1,4
SVS max.	mm	: 2,0
XK	mm	: 18,8...20,8
XL	mm	: 13,8...17,2

Remarks:

:

\* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U40  
Edition : 12.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/12F1250 R367  
Type number : 0 460 426 137

Customer-specific information  
Customer : CDC

Engine : 6 BT-5,9 IND

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 850  
Setting value mm: 3,8...4,2

Supply-pump pressure:

Speed 1/min: 1100  
Setting value bar: 3,9...4,5

Full-load del. w/out charge press.:

Speed 1/min : 1100  
Del. quantity cm<sup>3</sup>/  
1000H.: 56,5...57,5  
Dispersion cm<sup>3</sup>/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...14,0  
Dispersion cm<sup>3</sup>/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1450  
Del. quantity cm<sup>3</sup>/  
1000H.: 37,0...43,0

Start.

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 50,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,5...2,3  
mm: (1,2...2,6)  
2nd speed 1/min: 850  
TD travel mm: 3,8...4,2  
mm: (3,3...4,7)  
3rd speed 1/min: 1100  
TD travel mm: 5,4...6,2  
mm: (5,1...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,5...3,1  
2nd speed 1/min: 1100  
Supply-pump  
pressure bar: 3,9...4,5  
3rd speed 1/min: 1400

Supply-pump  
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1400  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1580  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1530  
Del. quantity cm3/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1490  
Del. quantity cm3/: 15,0...55,0  
1000H.: -  
4th speed 1/min: 1450  
Del. quantity cm3/: 37,0...43,0  
1000H.: (34,0...46,0)  
5th speed 1/min: 1400  
Del. quantity cm3/: 53,5...56,5  
1000H.: (52,0...58,0)  
6th speed 1/min: 1100  
Del. quantity cm3/: 56,5...57,5  
1000H.: (54,0...60,0)  
7th speed 1/min: 850  
Del. quantity cm3/: 52,5...56,5  
1000H.: (50,5...58,5)  
8th speed 1/min: 500  
Del. quantity cm3/: 39,0...47,0  
1000H.: (37,0...49,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1400  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm3/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 450

Del. quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm3/: -  
ind. 1000H.: 60,0

2nd speed 1/min: 400  
Del. quantity cm3/: -  
max. 1000H.: 60,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : -  
KF mm : 5,0...5,4  
MS mm : 1,3...1,7  
SVS max. mm : -  
XK mm : 18,8...20,8  
XL mm : 9,6...13,0

Remarks:

: C.D.C. # 391 7542

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U35  
Edition : 10.07.89  
replaces : -  
Calibrating oil : ISO 4113  
Injection pump : VE 6/12F1000 R369  
Type number : 0 460 426 138  
Customer-specific information  
Customer : CDC

Engine : 6BT

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
Inlet press., bar : 0.35  
Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,5  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Setting value mm: 3,0...3,4

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,3...3,9

Full-load del. w/out charge press.:

Speed 1/min : 850  
Del. quantity cm<sup>3</sup>/  
1000H.: 63,0...64,0  
Dispersion cm<sup>3</sup>/  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 450  
Del. quantity cm<sup>3</sup>/  
1000H.: 4,0...10,0  
Dispersion cm<sup>3</sup>/  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1040  
Del. quantity cm<sup>3</sup>/  
1000H.: 53,0...59,0

Start.

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 60,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,2...2,0  
mm: (0,9...2,3)  
2nd speed 1/min: 750  
TD travel mm: 3,0...3,4  
mm: (2,5...3,9)  
3rd speed 1/min: 1000  
TD travel mm: 4,6...5,4  
mm: (4,3...5,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,3...2,9  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3,3...3,9  
3rd speed 1/min: 1000

Supply-pump  
pressure bar: 4,5...5,1

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1000  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1120  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1100  
Del. quantity cm3/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1060  
Del. quantity cm3/: 15,0...45,0  
1000H.: -  
4th speed 1/min: 1040  
Del. quantity cm3/: 53,0...59,0  
1000H.: (50,0...62,0)  
5th speed 1/min: 1000  
Del. quantity cm3/: 61,0...64,0  
1000H.: (59,5...65,5)  
6th speed 1/min: 850  
Del. quantity cm3/: 63,0...64,0  
1000H.: (60,5...66,5)  
7th speed 1/min: 750  
Del. quantity cm3/: 61,5...65,5  
1000H.: (59,5...67,5)  
8th speed 1/min: 500  
Del. quantity cm3/: 37,5...45,5  
1000H.: (35,5...47,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1000  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 450  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 450  
Del. quantity cm3/: 4,0...10,0  
1000H.: (2,0...12,0)  
2nd speed 1/min: 500

Del. quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm3/: -  
ind. 1000H.: 60,0

2nd speed 1/min: 240  
Del. quantity cm3/: -  
max. 1000H.: 60,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	0,8...1,2
XK	mm	:	18,8...20,8
XL	mm	:	9,9...13,3

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U39  
Edition : 12.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/12F1250 R372  
Type number : 0 460 426 141

Customer-specific information  
Customer : CDC

Engine : 6 BT-5.9 IND.

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC) :  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,3  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 1100  
Del. quantity cm<sup>3</sup>/  
1000H.: 73,0...74,0  
Dispersion cm<sup>3</sup>/  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 360  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...14,0  
Dispersion cm<sup>3</sup>/  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300  
Del. quantity cm<sup>3</sup>/  
1000H.: 51,0...57,0

Start.

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 60,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,5...2,3  
mm: (1,2...2,6)  
2nd speed 1/min: 750  
TD travel mm: 3,4...3,8  
mm: (2,9...4,3)  
3rd speed 1/min: 1100  
TD travel mm: 5,2...6,0  
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,4...3,0  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3,5...4,1  
3rd speed 1/min: 1100

Supply-pump  
pressure bar: 4,8...5,4

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1250  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1400  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1390  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1350  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: -  
4th speed 1/min: 1300  
Del. quantity cm<sup>3</sup>/: 51,0...57,0  
1000H.: (48,0...60,0)  
5th speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/: 70,0...73,0  
1000H.: (68,5...74,5)  
6th speed 1/min: 1100  
Del. quantity cm<sup>3</sup>/: 73,0...74,0  
1000H.: (70,5...76,5)  
7th speed 1/min: 900  
Del. quantity cm<sup>3</sup>/: 74,5...78,5  
1000H.: -  
8th speed 1/min: 750  
Del. quantity cm<sup>3</sup>/: 76,0...80,0  
1000H.: (74,0...82,0)  
9th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 64,0...72,0  
1000H.: (62,0...74,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 360  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 360

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Del. quantity cm<sup>3</sup>/: 8,0...14,0  
1000H.: (6,0...16,0)

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 70,0

2nd speed 1/min: 240  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 70,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	0,6...1,0
SVS max.	mm	:	-
XK	mm	:	18,8...20,8
XL	mm	:	11,1...14,5

Remarks:

: C.D.C. # 391 6947

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U38  
Edition : 12.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/12F1100 R225-23  
Type number : 0 460 426 143

Customer-specific information  
Customer : CDC

Engine : 6 BT -5,9 IN

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC):  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm : 1,3  
mm :  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750  
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 900  
Del.quantity cm<sup>3</sup>/  
1000H.: 71,5...72,5  
Dispersion cm<sup>3</sup>/: 4,0  
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm<sup>3</sup>/  
1000H.: 8,0...14,00  
Dispersion cm<sup>3</sup>/: 5,5  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1190  
Del.quantity cm<sup>3</sup>/  
1000H: 50,0...56,0

Start.

Speed 1/min: 100  
Del.quantity : -  
mind cm<sup>3</sup>/1000H.: 60,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,5...2,3  
mm: (1,2...2,6)  
2nd speed 1/min: 750  
TD travel mm: 3,4...3,8  
mm: (2,9...4,3)  
3rd speed 1/min: 1100  
TD travel mm: 5,5...6,3  
mm: (5,2...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 2,4...3,0  
2nd speed 1/min: 750  
Supply-pump  
pressure bar: 3,5...4,1  
3rd speed 1/min: 1100

Supply-pump  
pressure bar: 4,8...5,4

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1150  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1300  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1260  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -  
3rd speed 1/min: 1220  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: -  
4th speed 1/min: 1190  
Del. quantity cm<sup>3</sup>/: 50,0...56,0  
1000H.: (47,0...60,0)  
5th speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/: 66,5...69,5  
1000H.: (65,0...71,0)  
6th speed 1/min: 900  
Del. quantity cm<sup>3</sup>/: 71,5...72,5  
1000H.: (69,0...75,0)  
7th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 58,0...66,0  
1000H.: -

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 8,0...14,0  
1000H.: (6,0...16,0)  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H.: 70,0

2nd speed 1/min: 240  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H.: 60,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	0,8...1,2
SVS max.	mm	:	-
XK	mm	:	20,2...22,2
XL	mm	:	11,5...14,9

Remarks:

: C.D.C. # 391 6949

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U36  
Edition : 10.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/12F1050 R373-2  
Type number : 0 460 426 145

Customer-specific information  
Customer : CDC

Engine : 6 BTA 5,9L

Power k: 127  
Speed 1/mi: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 027

Opening  
pressure bar : 250...253

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,3  
(from BDC):  $\pm 0,02$  (0,04)

Start of delivery block  
Piston stroke mm: 1,85  
mm:  $\pm 0,02$  (0,06)

Outlet : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750  
Charge press. hPa: 1000  
Setting value mm: 1,5...1,9

Supply-pump pressure:

Speed 1/min: 750  
Charge press. hPa: 1000  
Setting value bar: 2,9...3,5

Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 94,5...95,5  
Dispersion cm<sup>3</sup>/  
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/  
1000H.: 50,5...51,5  
Dispersion cm<sup>3</sup>/  
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...12,0  
Dispersion cm<sup>3</sup>/  
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1100  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 73,0...79,0

Start:

Speed 1/min: 100  
Charge press. hPa: -  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 60,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000

TD travel mm: 0,5...1,3  
mm: (0,2...1,6)  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
TD travel mm: 1,5...1,9  
mm: (1,0...2,4)  
3rd speed 1/min: 1050  
Charge press. hPa: 1000  
TD travel mm: 2,5...3,3  
mm: (2,2...3,6)

#### Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure bar: 1,8...2,4  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump pressure bar: 2,9...3,5  
3rd speed 1/min: 1050  
Charge press. hPa: 1000  
Supply-pump pressure bar: 4,3...4,9

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 1050  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 700\*  
Charge-air pressure-setting point hPa: 300  
LDA stroke mm: 7,3  
Del. quantity cm<sup>3</sup>/: 79,5...80,5  
1000H.: (75,5...84,5)  
2nd speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
3rd speed 1/min: 1170  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0,0...15,0  
1000H.: -  
4th speed 1/min: 1140  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 15,0...55,0  
1000H.: -  
5th speed 1/min: 1100  
Charge press. hPa: 1000

Del. quantity cm<sup>3</sup>/: 73,0...79,0  
1000H.: (70,0...82,0)  
6th speed 1/min: 1050  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 83,5...86,5  
1000H.: (82,0...88,0)  
7th speed 1/min: 900  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 87,5...90,5  
1000H.: (86,0...92,0)  
8th speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 94,5...95,5  
1000H.: (92,0...98,0)  
9th speed 1/min: 700  
Charge press. hPa: 300  
Del. quantity cm<sup>3</sup>/: 79,5...80,5  
1000H.: (75,5...84,5)  
10th speed 1/min: 500  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 98,0...106,0  
1000H.: -  
11th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 50,5...51,5  
1000H.: (46,5...55,5)

#### Zero delivery (stop):

#### Mech. shutoff:

Speed 1/min: 1050  
Del. quantity cm<sup>3</sup>/: 0...3  
1000H.: -

#### Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 8,0...12,0  
1000H.: (5,0...15,0)  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 250  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 45,0  
2nd speed 1/min: 450  
Charge press. hPa: -

Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 55,0

Shutoff electromagnet:

Cut-in  
min. voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,2...1,6
SVS max.	mm	: 1,2
XK	mm	: 21,8...23,8
XL	mm	: 13,8...17,2

Remarks:

\* Correction at adjusting nut (46) 00

Operate control lever after each  
manifold-pressure compensator pressure  
change.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 1,9 A  
Edition : 19.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/ 8F2200 R337  
Type number : 0 460 484 022  
  
Customer-specific information  
Customer : VW  
  
Engine : 086

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0,35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : -  
(from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250  
Setting value mm: 3,1...3,5

Supply-pump pressure:

Speed 1/min: 1250  
Setting value bar: 5,5...6,1

Full-load del. w/out charge press.:

Speed 1/min : 1250  
Del.quantity cm3/  
1000H.: 35,5...36,5  
Dispersion cm3/: 2,0  
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 450  
Del.quantity cm3/  
1000H.: 7,0...9,0  
Dispersion cm3/: 2,0  
1000H.: (3,0)  
Residual-Delivery Setting  
Speed 1/min: 575  
Del.quantity cm3/  
1000H.: 2,0...3,0

Full-load speed regulation:

Speed 1/min: 2525  
Del.quantity cm3/  
1000H.: 10,0...14,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750  
TD travel mm: 1,1...1,9  
mm: (0,8...2,2)  
2nd speed 1/min: 1250  
TD travel mm: 3,1...3,5  
mm: (2,6...4,0)  
3rd speed 1/min: 2200  
TD travel mm: 7,1...7,9  
mm: (6,8...8,2)

Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump  
pressure bar: 4,3...4,9  
2nd speed 1/min: 1250  
Supply-pump  
pressure bar: 5,5...6,1  
3rd speed 1/min: 2200

Supply-pump  
pressure bar: 7,7...8,3

Overflow quantity at overflow valve:

1st speed 1/min: 750  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 2200  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2700  
Del. quantity cm3/: 0,0...6,0  
1000H.: -  
2nd speed 1/min: 2525  
Del. quantity cm3/: 10,0...14,0  
1000H.: (8,0...16,0)  
3rd speed 1/min: 2425  
Del. quantity cm3/: 18,0...28,0  
1000H.: (17,0...29,0)  
4th speed 1/min: 2200  
Del. quantity cm3/: 31,0...33,0  
1000H.: (29,8...34,2)  
5th speed 1/min: 1250  
Del. quantity cm3/: 35,5...36,5  
1000H.: (33,8...38,2)  
6th speed 1/min: 750  
Del. quantity cm3/: 30,0...33,0  
1000H.: (28,5...34,5)  
7th speed 1/min: 500  
Del. quantity cm3/: 27,5...32,5  
1000H.: (25,0...35,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 450  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0

Idle delivery:

1st speed 1/min: 450  
Del. quantity cm3/: 7,0...9,0  
1000H.: (4,0...12,0)

High Idle:

Speed 1/min: 525  
Del. quantity cm3/: 7,0...9,0  
1000H.: (4,0...12,0)

Residual:

Speed 1/min: 525

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Del. quantity : 2,5...4,5  
1000H.: (1,0...6,0)

Automatic starting fuel delivery:

1st speed 1/min: 180  
Del. quantity cm3/: -  
ind. 1000H: 35,0

2nd speed 1/min: 380  
Del. quantity cm3/: -  
max. 1000H : 38,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : 3,2...3,4  
KF mm : 5,1...5,5  
MS mm : 1,1...1,5  
XK mm : 20,0...22,0  
XL mm : 9,7...13,1

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 K2  
Edition : 14.07.89  
replaces : 04.11.87  
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R162-4  
Customer Part-No. : 0 460 494 224

Customer-specific information  
Customer : PEUGEOT

Engine : XUD9

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 022

Opening  
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : -  
(from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250  
Setting value mm: 4,0...4,4

Supply-pump pressure:

Speed 1/min: 1250  
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del.quantity cm3/  
1000H.: 28,0...29,0  
Dispersion cm3/  
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm3/  
1000H.: 7,0...9,0  
Dispersion cm3/  
1000H.: (3,0)  
Residual-Delivery Setting  
Speed 1/min: 550  
Del.quantity cm3/  
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2440  
Del.quantity cm3/  
1000H.: 20,0...26,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 64,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 1,5...2,3  
mm: (1,2...2,6)  
2nd speed 1/min: 1250  
TD travel mm: 4,0...4,4  
mm: (3,5...4,9)  
3rd speed 1/min: 2000  
TD travel mm: 7,6...8,4  
mm: (7,3...8,7)

Supply-pump pressure characteristic:

1st speed 1/min: 800  
Supply-pump  
pressure bar: 3,0...3,6  
2nd speed 1/min: 1250  
Supply-pump  
pressure bar: 4,2...4,8  
3rd speed 1/min: 2000

Supply-pump  
pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2250  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2650  
Del. quantity cm<sup>3</sup>/: 0,0...7,0  
1000H.: -  
2nd speed 1/min: 2540  
Del. quantity cm<sup>3</sup>/: 10,0...16,0  
1000H.: (9,0...17,0)  
3rd speed 1/min: 2440  
Del. quantity cm<sup>3</sup>/: 20,0...26,0  
1000H.: (19,0...27,0)  
4th speed 1/min: 2250  
Del. quantity cm<sup>3</sup>/: 29,2...31,2  
1000H.: (28,2...32,2)  
5th speed 1/min: 2000  
Del. quantity cm<sup>3</sup>/: 30,1...32,1  
1000H.: (29,1...33,1)  
6th speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/: 28,0...29,0  
1000H.: (26,5...30,5)  
7th speed 1/min: 800  
Del. quantity cm<sup>3</sup>/: 28,2...30,8  
1000H.: (27,5...31,5)  
8th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 28,5...31,5  
1000H.: (28,0...32,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 7,0...9,0  
1000H.: (4,0...12,0)

High Idle:

Speed 1/min: 470  
Del. quantity cm<sup>3</sup>/: 7,0...9,0  
1000H.: (4,0...12,0)

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Residual:

Speed 1/min: 550  
Del. quantity : 2,5...3,5  
1000H.: (1,0...5,0)

Arrangement of drivers on engine-  
speed lever for exhaust-gas-  
recirculation valve linkage (guage)

1st speed 1/min: 1125  
Del. quantity cm<sup>3</sup>/: 17,0...19,0  
1000H.: (15,5...20,5)

Automatic starting fuel delivery:

1st speed 1/min: 200  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 20,0

2nd speed 1/min: 300  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 1,3...1,55
XK	mm	: 17,0...19,0
XL	mm	: 14,2...17,6

Remarks:

For adjustment of switching point  
(EGR valve), include 10.8 mm spacer  
at third fuel-delivery stop.

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,9 H  
Edition : 20.07.89  
replaces : 16.11.87  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/ 9F2100 L184-1  
Type number : 0 460 494 236  
  
Customer-specific information  
Customer : FIAT  
  
Engine : M707 CT 19.0

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0.35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 022  
  
Opening  
pressure bar : 130...133  
  
Test inj. tubing : 1 680 750 073  
  
Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450  
  
Start of delivery  
Prestroke mm : -  
(from BDC) : -

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel:

Speed 1/min: 1500  
Charge press. hPa: 800  
Setting value mm: 5,4...5,8

### Supply-pump pressure:

Speed 1/min: 1500  
Charge press. hPa: 800  
Setting value bar: 6,1...6,7

### Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/  
1000H.: 46,3...47,3  
Dispersion cm<sup>3</sup>/  
1000H.: 2,5

### Full-load del. w/out charge press.:

Speed 1/min : 800  
Del. quantity cm<sup>3</sup>/  
1000H.: 35,6...36,6

### Low-idle speed regulation:

Speed 1/min: 350  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 8,0...12,0  
Dispersion cm<sup>3</sup>/  
1000H.: 2,5

### Full-load speed regulation:

Speed 1/min: 2400  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/  
1000H.: 15,0...21,0

### Start:

Speed 1/min: 100  
Charge press. hPa: -  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 57,0

### Load-dependent start of delivery:

Speed 1/min: 1500  
Charge press. hPa: -

### Inspection-pump test specifications Test specifications in parentheses

### Timing-device characteristic:

1st speed 1/min: 800  
Charge press. hPa: 800  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)  
2nd speed 1/min: 1500  
Charge press. hPa: 800  
TD travel mm: 5,4...5,8  
mm: (4,9...6,3)  
3rd speed 1/min: 2000  
Charge press. hPa: 800

TD travel mm: 7,6...8,4  
mm: (7,3...8,7)

#### Supply-pump pressure characteristic:

1st speed 1/min: 400  
Charge press. hPa: 800  
Supply-pump pressure bar: 2,8...3,4  
2nd speed 1/min: 800  
Charge press. hPa: 800  
Supply-pump pressure bar: 4,1...4,7  
3rd speed 1/min: 1500  
Charge press. hPa: 800  
Supply-pump pressure bar: 6,1...6,7  
4th speed 1/min: 2000  
Charge press. hPa: 800  
Supply-pump pressure bar: 7,5...8,1

#### Overflow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: -  
Overflow quantity cm<sup>3</sup>/10s: 41...83  
(26...98)  
2nd speed 1/min: 2100  
Charge press. hPa: 800  
Overflow quantity cm<sup>3</sup>/10s: 55...138  
(40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 800\*  
Charge-air pressure-setting point hPa: 450  
LDA stroke mm: 4,5  
Del. quantity cm<sup>3</sup>/: 45,0...46,0  
1000H.: (43,0...48,0)  
2nd speed 1/min: 2550  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/: 0,0...5,0  
1000H.: -  
3rd speed 1/min: 2400  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/: 15,0...21,0  
1000H.: (14,0...22,0)  
4th speed 1/min: 2300  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/: 29,0...36,0  
1000H.: -  
5th speed 1/min: 2100  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/: 46,5...49,5  
1000H.: (45,8...50,2)  
6th speed 1/min: 1500  
Charge press. hPa: 800

Del. quantity cm<sup>3</sup>/: 46,3...47,3  
1000H.: (44,8...48,8)  
7th speed 1/min: 800  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 35,6...36,6  
1000H.: (33,6...38,6)  
8th speed 1/min: 600  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 37,3...39,3  
1000H.: -

#### Zero delivery (stop):

#### Electr. shutoff:

Speed 1/min: 350  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

#### Idle delivery:

1st speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: 8,0...12,0  
1000H.: (6,0...14,0)  
2nd speed 1/min: 400  
Del. quantity cm<sup>3</sup>/: 2,0...8,0  
1000H.: (1,0...9,0)  
3rd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 0,0...1,6  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 300  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H: 55,0  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: -  
max. 1000H: 45,0

#### Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

#### Mounting and assembly dimensions:

#### Designation

K	mm	: 3,2...3,4
KF	mm	: 5,6...6,0
MS	mm	: 1,3...1,7
SVS max.	mm	: 5,4
XK	mm	: 20,0...22,0
XL	mm	: 12,3...15,7

#### Remarks:

\* Correction at adjusting nut (46)

Microswitch setting instructions

Microswitch is switched on between 0°  
idle and 12°...13° control lever angle  
(8.5...9.0 mm control lever travel).

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 1,5 B  
Edition : 18.07.89  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/10F2300 R365  
Type number : 0 460 620 004

Customer-specific information  
Customer : ISUZU

Engine : 4 EE1-TC

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly : 1 688 901 022

Opening  
pressure bar : 130...133

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : -  
(from BDC) : -

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel:

Speed 1/min: 1250  
Charge press. hPa: 1000  
Setting value mm: 2,9...3,3

### Supply-pump pressure:

Speed 1/min: 1250  
Charge press. hPa: 1000  
Setting value bar: 3,9...4,5

### Full-load del. with charge press.:

Speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 52,5...53,5

### Full-load del. w/out charge press.:

Speed 1/min: 550  
Del. quantity cm<sup>3</sup>/  
1000H.: 34,7...38,7

### Low-idle speed regulation:

Speed 1/min: 415  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 9,5...13,5

### Full-load speed regulation:

Speed 1/min: 2600  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H.: 18,4...24,4

### Start:

Speed 1/min: 100  
Charge press. hPa: -  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 44,0

### Load-dependent start of delivery:

Speed 1/min: 1250  
Charge press. hPa: 1000

Inspection-pump test specifications  
Test specifications in parentheses

### Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
TD travel mm: 0,3...1,1  
mm: (0,0...1,4)

2nd speed 1/min: 1250  
Charge press. hPa: 1000  
TD travel mm: 2,9...3,3  
mm: (2,4...3,8)

3rd speed 1/min: 2000  
Charge press. hPa: 1000  
TD travel mm: 5,8...6,6  
mm: (5,5...6,9)

4th speed 1/min: 2250  
Charge press. hPa: 1000

TD travel           mm: 6,8...7,6  
                    mm: (6,5...7,9)

Supply-pump pressure characteristic:

1st speed       1/min: 600  
Charge press.   hPa: 1000  
Supply-pump  
  pressure       bar: 2,1...2,7  
2nd speed       1/min: 1250  
Charge press.   hPa: 1000  
Supply-pump  
  pressure       bar: 3,9...4,5  
3rd speed       1/min: 2250  
Charge press.   hPa: 1000  
Supply-pump  
  pressure       bar: 6,5...7,1

Overflow quantity at overflow valve:

1st speed       1/min: 1250  
Charge press.   hPa: 1000  
Overflow         : 83...127  
  quantity cm3/10s: (68...142)

Delivery-quant. and breakaway char.:

1st speed       1/min: 1000  
Charge-air pressure-setting  
  point          hPa: 410  
Del. quantity   cm3/: 47,8...48,5  
                 1000H.: (45,8...50,8)  
2nd speed       1/min: 2750  
Charge press.   hPa: 1000  
Del. quantity   cm3/: 0,0...5,0  
                 1000H.: -  
3rd speed       1/min: 2600  
Charge press.   hPa: 1000  
Del. quantity   cm3/: 18,4...24,4  
                 1000H.: (16,9...25,9)  
4th speed       1/min: 2400  
Charge press.   hPa: 1000  
Del. quantity   cm3/: 41,0...49,0  
                 1000H.: (40,0...50,0)  
5th speed       1/min: 2300  
Charge press.   hPa: 1000  
Del. quantity   cm3/: 49,5...52,5  
                 1000H.: (48,7...53,3)  
6th speed       1/min: 2200  
Charge press.   hPa: 1000  
Del. quantity   cm3/: 50,0...53,0  
                 1000H.: (49,2...53,8)  
7th speed       1/min: 1250  
Charge press.   hPa: -  
Del. quantity   cm3/: 31,7...35,7  
                 1000H.: (31,2...36,2)  
8th speed       1/min: 1250  
Charge press.   hPa: 1000  
Del. quantity   cm3/: 52,5...53,5  
                 1000H.: (50,7...55,3)

9th speed       1/min: 1000  
Charge press.   hPa: 410  
Del. quantity   cm3/: 47,8...48,8  
                 1000H.: (45,8...50,8)  
10th speed       1/min: 550  
Charge press.   hPa: -  
Del. quantity   cm3/: 34,7...38,7  
                 1000H.: (33,7...39,7)

Zero delivery (stop):

Electr. shutoff:

Speed           1/min: 415  
ELAB            volt: -  
Del. quantity   cm3/: 0,0...3,0  
max.            1000H.: -

Idle delivery:

1st speed       1/min: 415  
Del. quantity   cm3/: 9,5...13,5  
                 1000H.: (7,5...15,5)  
2nd speed       1/min: 550  
Del. quantity   cm3/: 0,0...5,0  
                 1000H.: -

Automatic starting fuel delivery:

2nd speed       1/min: 400  
Del. quantity   cm3/: -  
max.            1000H.: 52,5

Shutoff electromagnet:

Cut-in  
  min. voltage       : 10,0  
Rated voltage        : 12,0

Mounting and assembly dimensions:

MS                   mm : 0,8...1,0

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 2,0 r6  
Edition : 03.07.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 074 897  
  
Injection pump  
Pump designation : PES4M55C32ORS172  
EP type number : 0 410 054 958  
Governor  
Governor design. : RSF360/2300M60-25  
Governor no. : 0 420 021 132

Customer-spec. information  
Customer : DB-PKW

Engine : OM601-Abgl. MJ90

1st version kW : 53.0

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 1.70...1.80  
: (1.65...1.85)

Rack travel in mm : 20.00...22.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 3.0...3.1

100 s : (2.9...3.2)

Spread cm<sup>3</sup> : 0.2

100 s : (0.3)

2nd speed rpm : 335.0

Rack travel in mm : 6.5...6.7

Del. quantity cm<sup>3</sup>/ : 0.5...0.6

100 s : (0.4...0.9)

Spread cm<sup>3</sup> : 0.1

100 s : (0.1)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1000

Aneroid pressure h : 1100

Del. quantity : 30.5...31.5

1000 : (29.5...32.5)

Spread cm<sup>3</sup> : 2.50

1000 : (3.00)

## RATED SPEED

### 1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8,0...8,4

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

## SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,4...1,5

## LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

Spread      cm<sup>3</sup> : 2.50  
                 1000 s: (3.00)

STARTING FUEL DELIVERY

```
Speed          rpm      : 100
Del.quantity   cm3/      : 52.0...0.0
                1000 s : (52.0...0.0)
Rack travel in mm : 20.10...0.00
```

## HIGH IDLE

```

1st version
Aneroid pressure h: 1100
Speed          rpm : 2500
Rack travel in mm : 8.00...8.40
Del.quantity cm3/ : 16.0...20.0
                1000 s: (15.0...21.0)
Spread         cm3 : 2.50
                1000 s: (3.00)

```

LOW IDLE

```
Speed      rpm      : 335
Rack travel in mm : 6.50...6.70
Del.quantity cm3/  : 5.0...6.0
              1000 s: (4.5...9.0)
Spread      cm3     : 1.00
              1000 s: (1.50)
```

## SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Control lever at idle stop

```
Speed          rpm      : 360
Rack travel in mm : (13,0...14,4)
Del.quantity cm3/ : -
                1000 s : (29,0...37,0)
```

```
Current A      : 1,8
Control lever at full-load stop
Speed         rpm : 2950
Rack travel in mm : 0,0...1,0
Current
```

short-duration A : 3,0

### Starting test

Speed rpm : 100  
Del.quantity cm3/ : -  
min. 1000 s: 52,0

Remarks:

Pin projection = 16.60...16.70 mm

## CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

- Control-lever position  $49^\circ$ , max.
- 0.2 mm control-rod travel deduction

allowable after switchover point (of starting cam) up to 1000 1/min.  
Control-lever position  $46.5^{\circ}$ ,  
control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

#### TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.

With  $n = 335$  1/min. and  $p_u = 450$  mbar,  
control rod must move quickly to  
control-rod travel = 0 mm

Difference in start of delivery between  
max. and min. value = max.  $1^{\circ}$  angular  
displacement of cam

Start-of-delivery sensor system:

adjustment and blocking with device

KDEP 1077 =  $17.3^{\circ} \dots 17.7^{\circ}$

( $17.2 \dots 17.8^{\circ}$ ) angular displacement of  
cam following start of delivery of  
cylinder no. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 2,0 r7  
 Edition : 03.07.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 074 898  
 Injection pump  
 Pump designation : PES4M55C32ORS172  
 EP type number : 0 410 054 958  
 Governor  
 Governor design. : RSF375/2300M56-10  
 Governor no. : 0 420 021 130

Customer-spec. information  
 Customer : DB-PKW

Engine : OM601-Abgl. MJ90

1st version kW : 53.0

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80  
 : (1.65...1.85)

Rack travel in mm : 20.00...22.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 3.0...3.1

100 s : (2.9...3.2)

Spread cm<sup>3</sup> : 0.2

100 s : (0.3)

2nd speed rpm : 375.0

Rack travel in mm : 6.4...6.6

Del. quantity cm<sup>3</sup>/ : 0.5...0.6

100 s : (0.4...0.9)

Spread cm<sup>3</sup> : 0.1

100 s : (0.1)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del. quantity : 30.5...31.5

1000 : (29.5...32.5)

Spread cm<sup>3</sup> : 2.50

1000 : (3.00)

## RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8,0...8,4

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

## SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,4...1,5

## LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

Spread            cm<sup>3</sup> : 2.50  
                      1000 s: (3.00)

STARTING FUEL DELIVERY

```
Speed          rpm      : 100
Del.quantity   cm3/      : 52.0...0.0
                1000 s : (52.0...0.0)
Rack travel in mm : 20.10...0.00
```

## HIGH IDLE

```

1st version
Aneroid pressure h: 1100
Speed      rpm      : 2500
Rack travel in mm : 8.00...8.40
Del.quantity cm3/   : 16.0...20.0
              1000 s: (15.0...21.0)
Spread      cm3      : 2.50
              1000 s: (3.00)

```

LOW IDLE

```
Speed      rpm      : 375
Rack travel in mm : 6.40...6.60
Del. quantity cm3/ : 5.0...6.0
           1000 s : (4.5...9.0)
Spread     cm3      : 1.00
           1000 s : (1.50)
```

SETTING PNEUMATIC FAST IDLE  
(FLA)

```
Speed      rpm      : 425
Rack travel in mm : (7,8...9,4)
Del.quantity cm3/  : -
              1000 s : (10,5...18,5)
Vacuum      hPa     : 400
```

## Remarks:

Pin projection = 16.60...16.70 mm

## CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position  $49^{\circ}$ , max.  
0.2 mm control-rod travel deduction  
allowable after switchover point (of  
starting cam) up to 1000 1/min.  
Control-lever position  $46.5^{\circ}$ ,  
control-rod travel deduction must be  
greater than 0.2 mm after switchover  
point (of starting cam).

# TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.  
With  $n = 375$  1/min. and  $p_u = 450$  mbar,  
control rod must move quickly to  
control-rod travel = 0 mm

Difference in start of delivery between  
max. and min. value = max.  $1^\circ$  angular  
displacement of cam

Start-of-delivery sensor system:  
adjustment and blocking with device  
 $KDEP\ 1077 = 17.3^\circ \dots 17.7^\circ$   
( $17.2 \dots 17.8^\circ$ ) angular displacement of  
cam following start of delivery of  
cylinder no. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : 2,3 d  
Edition : 17.07.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 074 908  
  
Injection pump  
Pump designation : PES4M55C32ORS167  
EP type number : 0 410 054 960  
Governor  
Governor design. : RSF375/2000M69  
Governor no. : 0 420 021 100

Customer-spec. information  
Customer : DB

Engine : OM601-2.3l

1st version kW : 60.0

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 20.00...22.00

Firing order : 1- 3- 4- 2

F15

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.80...12.90

Del. quantity cm<sup>3</sup>/ : 4.0...4.1

100 s: (3.9...4.2)

Spread cm<sup>3</sup> : 0.2

100 s: (0.3)

2nd speed rpm : 375.0

Rack travel in mm : 5.0...5.2

Del. quantity cm<sup>3</sup>/ : 0.5...0.6

100 s: (0.4...0.9)

Spread cm<sup>3</sup> : 0.1

100 s: (0.1)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del. quantity : 40.0...41.0

1000 : (39.0...42.0)

Spread cm<sup>3</sup> : 2.50

1000 : (3.00)

## RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 7,0...7,5

Speed rpm : 2200

4th rack travel in: 2500

Speed rpm : 0.00...1.00

## SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,4...1,5

## LOW IDLE 1

Control lever

position degrees: 11...15

Setting point w/out bumper spring



Pin projection = 16.60...16.70 mm

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.

With  $n = 375$  1/min. and  $p_u = 450$  mbar,  
control rod must move quickly to  
control-rod travel = 0 mm

Start-of-delivery sensor system:  
adjustment and blocking with device

KDEP 1077 =  $15.3^{\circ}$ ... $15.7^{\circ}$   
( $15.2$ ... $15.8^{\circ}$ ) angular displacement of  
cam following start of delivery of  
cylinder no. 1.

Difference in start of delivery between  
max. and min. value = max.  $1^{\circ}$  angular  
displacement of cam

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 2.5 C6  
Edition : 03.07.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 075 935  
Injection pump  
Pump designation : PESSM55C32ORS15B-1  
EP type number : 0 410 055 979  
Governor  
Governor design. : RSF340/2300M65-4  
Governor no. : 0 420 021 144

Customer-spec. information  
Customer : DB-PKW

Engine : OM602A-ECE

1st version kW : 92.0

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.20...2.30  
: (2.15...2.35)

Rack travel in mm : 20.00...22.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.90...14.00

Del. quantity cm<sup>3</sup>/ : 5.1...5.2

100 s: (5.0...5.3)

Spread cm<sup>3</sup> : 0.2

100 s: (0.3)

2nd speed rpm : 315.0

Rack travel in mm : 5.4...5.6

Del. quantity cm<sup>3</sup>/ : 0.5...0.6

100 s: (0.4...0.9)

Spread cm<sup>3</sup> : 0.1

100 s: (0.1)

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1000

Aneroid pressure h: 1850

Del. quantity : 51.0...52.0

1000 : (50.0...53.0)

Spread cm<sup>3</sup> : 2.50

1000 : (3.00)

## RATED SPEED

### 1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.1...8.5

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

## SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1.7...1.8

## LOW IDLE 1

Control lever

position degrees: 8...12

Setting point w/out bumper spring

Speed rpm : 315  
Rack travel in mm : 5.5

#### Testing:

Speed rpm : 220  
Minimum rack travel : 8.00  
Speed rpm : 315  
Rack travel in mm : 5.40...5.60  
Rack travel in mm : 2.50  
Speed rpm : 540...640  
Speed rpm : 1000  
Maximum rack travel : 1.80

#### SET IDLE AUXILIARY SPRING

Speed rpm : 380  
Rack travel in mm : 4.2...4.4  
: (4.1...4.5)

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000  
Rack travel in mm : 13.90...14.00  
2nd speed rpm : 1600  
Rack travel in mm : 13.20...13.40  
3rd speed rpm : 2200  
Rack travel in mm : 12.30...12.50

#### Aneroid/Altitude Compensator Test

##### 1st version

Setting  
Speed rpm : 1000  
Pressure hPa : 1600  
Rack travel mm : 0.50...0.90

##### Measurement

Speed 1/min : 1000

1st pressure hPa : 1050  
Rack travel in mm : 3.90...4.10  
2nd pressure hPa : 750  
Rack travel in mm : 5.80...6.20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: 1850  
Speed rpm : 1600  
Del. quantity cm<sup>3</sup>/ : 50.0...51.5  
1000 s: (49.0...52.5)  
Spread cm<sup>3</sup> : 2.50  
1000 s: (3.0)  
Aneroid pressure h: 1850  
Speed rpm : 2200  
Del. quantity cm<sup>3</sup>/ : 48.5...50.5  
1000 s: (47.5...51.5)

Spread cm<sup>3</sup> : 2.50  
1000 s: (3.00)  
Aneroid pressure h: 1050  
Speed rpm : 1000  
Del. quantity cm<sup>3</sup>/ : 33.0...34.0  
1000 s: (32.0...35.0)  
Spread cm<sup>3</sup> : 2.50  
1000 s: (3.00)

#### INTERMEDIATE RATED SPEED

##### Control lever

position degrees: 30...0  
Rack travel in mm : 9.50  
Speed rpm : 0...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 52.0...0.0  
1000 s: (52.0...0.0)  
Rack travel in mm : 20.10...0.00

#### HIGH IDLE

##### 1st version

Aneroid pressure h: 1850  
Speed rpm : 2500  
Rack travel in mm : 8.10...8.50  
Del. quantity cm<sup>3</sup>/ : 29.0...33.0  
1000 s: (28.0...34.0)  
Spread cm<sup>3</sup> : 2.50  
1000 s: (3.00)

#### LOW IDLE

Speed rpm : 315  
Rack travel in mm : 5.40...5.60  
Del. quantity cm<sup>3</sup>/ : 5.5...6.5  
1000 s: (4.5...9.0)  
Spread cm<sup>3</sup> : 1.00  
1000 s: (1.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 1 g 28  
 Edition : 27.06.88  
 Replaces : 26.06.87  
 Test oil : ISO-4113

Combination no. : 0 400 464 133

Injection pump  
 Pump designation : PES4A80D410/3RS1349  
 EP type number : 0 410 484 021  
 Governor  
 Governor design. : RSV325...1175A8C2163  
 -4L  
 Governor no. : 0 420 232 476

Customer-spec. information  
 Customer : KHD

Engine : F4L912

1st version kW : 51.0  
 Rated speed : 2350

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
 : (1.85...2.05)

F20

Rack travel in mm : 9.00...12.00

Phasing : 0-90-180-270  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 10.10...10.20

Del. quantity cm3/ : 5.7...5.8  
 100 s: (5.6...6.0)

Spread cm3 : 0.25  
 100 s: (0.40)

2nd speed rpm : 325  
 Rack travel in mm : 5.90...6.10  
 Del. quantity cm3/ : 1.0...1.6  
 100 s: (0.8...1.7)

Spread cm3 : 0.20  
 100 s: (0.30)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.25

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1175  
 Del. quantity : 57.5...58.5  
 1000 : (56.0...60.0)

Spread cm3 : 2.5  
 1000 : (4.0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 49...57

## Testing:

1st rack travel in: 9.10  
 Speed rpm : 1215...1225  
 2nd rack travel in: 4.00  
 Speed rpm : 1240...1270  
 3rd rack travel in: 4.00  
 Speed rpm : 1255...1285  
 4th rack travel in: 1415

Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever

position degrees: 13...17

Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 5.50

#### Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 325

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 460...520

#### TORQUE CONTROL

Dimension a mm : 0.85

Torque control curve - 1st version

1st speed rpm : 1175

Rack travel in m: 10.10...10.20

2nd speed rpm : 500

Rack travel in m: 11.00...11.10

3rd speed rpm : 990

Rack travel in m: 10.50...10.70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800

Del.quantity cm3/ : 55.0...57.0

1000 s: (53.0...59.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.10

Speed rpm : 1215...1225

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 135.0...145.0

1000 s: (132.0...148.0)

Rack travel in mm : 19.50...21.00

Remarks:

: TKS2.70

#### APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : LAB 4,6 a  
Edition : 23.08.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 474 134  
Injection pump  
Pump designation : PES4A8SD41ORS1232  
Governor  
Governor design. : RSV250...1000A1B1024  
L

Customer-spec. information  
Customer : LAMBORGHINI

Engine : FL 1104/2

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Inlet press., bar : 1.0  
Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 3,70...3,75  
: (3,65...3,80)  
Rack travel in mm : 21,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

## BEGINNING OF DELIVERY DIFFERENCE

F22

betw. rack trav. m: 10,20  
& maximum rack tra: 21,00  
Difference ° CS : 4,5...6,0

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 6,00  
Del. quantity cm3/ : 2,4...3,6  
100 s: (-)

2nd speed rpm : 1000  
Rack travel in mm : 9,00  
Del. quantity cm3/ : 5,9...6,4  
100 s: (-)  
3rd speed rpm : 200  
Rack travel in mm : 9,00  
Del. quantity cm3/ : 3,6...4,4  
100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Del. quantity : 78,5...80,5  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 51...59

Testing:  
1st rack travel in: 9,50  
Speed rpm : 1055...1085  
2nd rack travel in: 4,00  
Speed rpm : 1105...1135  
4th rack travel in: 1220  
Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
position degrees: 21...29  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6,00

Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 250  
Rack travel in mm : 5,70...6,30  
Speed rpm : 440  
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 9,00  
2nd speed rpm : 450  
Rack travel in m: 9,00  
3rd speed rpm : 300  
Rack travel in m: 10,20...10,80

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1020

Remarks:

APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 8,7 m  
 Edition : 09.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 646 094  
 Injection pump  
 Pump designation : PE6A90C410RS2124  
 Governor  
 Governor design. : RQ300/1125AB713  
 Customer-spec. information  
 Customer : MERCEDES-BENZ  
 Engine : OM 360

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Inlet press., bar : 1.0  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 014  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4  
 Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 6,4...6,9  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 15,00  
 Del. quantity cm<sup>3</sup>/ : 13,8...15,3  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 3,7...4,9  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1050  
 Rack travel in mm : 15.10...15.70

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 83,5...85,5  
 1000 : (-)

## RATED SPEED

### 1st version

Setting point:  
 Speed rpm : 1050  
 Rack travel in mm : 15,4

### Testing:

1st rack travel in: 15,20  
 Speed rpm : 1115...1145  
 2nd rack travel in: 10,50  
 Speed rpm : 1165...1195  
 3rd rack travel in: 0.00...8.00  
 Speed rpm : 1230  
 4th rack travel in: 1310  
 Speed rpm : <0.00

### LOW IDLE 1

Setting point w/out bumper spring  
 Speed rpm : 570  
 Rack travel in mm : <0,00

### Testing:

Speed rpm : 200  
 Minimum rack trave: 7.80

Speed rpm : 300  
Rack travel in mm : 4.70...7.10  
Rack travel in mm : 2.25  
Speed rpm : 390...410  
Speed rpm : 470  
Maximum rack trave: 0.01

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 600  
Rack travel in m: 15,80...16,00  
2nd speed rpm : 700  
Rack travel in m: 15,40...15,60

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700  
Del.quantity cm3/ : 86,0...89,0  
1000 s: (-)  
Speed rpm : 500  
Del.quantity cm3/ : 76,5...79,5  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 450

#### LOW IDLE

Speed rpm : 100  
Rack travel in mm : 15,25

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 8.3 n 5  
 Edition : 27.06.88  
 Replaces : 12.09.86  
 Test oil : ISO-4113  
 Combination no. : 0 400 676 175  
 Injection pump  
 Pump designation : PE6A95D41ORS2575  
 EP type number : 0 410 696 984  
 Governor  
 Governor design. : RSV250...1200A5C2198  
 -1L  
 Governor no. : 0 420 232 442  
 Customer-spec. information  
 Customer : DAF

Engine : DH825

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 7.50...10.50  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.00...4.00

## BASIC SETTING

1st speed rpm : 1200  
 Rack travel in mm : 10.40...10.50  
 Del. quantity cm3/ : 7.3...7.5  
 100 s: (7.1...7.7)  
 Spread cm3 : 0.35  
 100 s: (0.60)  
 2nd speed rpm : 250  
 Rack travel in mm : 6.10...6.30  
 Del. quantity cm3/ : 0.7...1.1  
 100 s: (0.4...1.3)  
 Spread cm3 : 0.35  
 100 s: 0.55

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1200  
 Del. quantity : 73.0...75.0  
 1000 : (71.0...77.0)  
 Spread cm3 : 3.5  
 1000 : (6.0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 59...67

Testing:  
 1st rack travel in: 9.40

Speed rpm : 1240...1250  
2nd rack travel in: 4.00  
Speed rpm : 1300...1330  
3rd rack travel in: 4.00  
Speed rpm : 1340...1370  
4th rack travel in: 1505  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 24...32  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.70  
Speed rpm : 250  
Rack travel in mm : 6.10...6.30  
Rack travel in mm : 2.00  
Speed rpm : 655...715

#### TORQUE CONTROL

Dimension a mm : 0.80  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 10.40...10.50  
2nd speed rpm : 500  
Rack travel in m: 11.20...11.30  
3rd speed rpm : 800  
Rack travel in m: 11.10...11.20  
4th speed rpm : 940  
Rack travel in m: 10.70...11.00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 74.5...77.5  
1000 s: (72.0...80.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.40  
Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 125.0...140.0  
1000 s: (122.0...143.0)  
Rack travel in mm : 19.50...21.00

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 N 11  
Edition : 21.1.88  
Replaces : 12.9.86  
Test oil : ISO-4113

Combination no. : 0 400 846 336

Injection pump  
Pump designation : PES6A90D41ORS2293W  
EP type number : 0 410 896 049  
Governor  
Governor design. : RQV300...1425AB740L  
Governor no. : 0 420 212 037

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 352A

1st version kW : 115.0  
Rated speed : 2850

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.15...2.25  
: (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del. quantity cm<sup>3</sup>/ : 7.1...7.2

100 s : (6.9...7.4)

Spread cm<sup>3</sup> : 0.30

100 s : (0.45)

2nd speed rpm : 300

Rack travel in mm : 7.50...7.70

Del. quantity cm<sup>3</sup>/ : 0.9...1.5

100 s : (0.7...1.7)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.70...2.20

2nd speed rpm : 550

travel mm : 2.70...3.00

3rd speed rpm : 775

travel mm : 4.10...4.60

4th speed rpm : 950

travel mm : 5.20...5.50

5th speed rpm : 1460

travel mm : 8.40...8.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1420

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 71.5...72.5

1000 : (69.5...74.5)

Spread cm<sup>3</sup> : 3.0

1000 : (4.5)

## RATED SPEED

1st version  
Control lever  
position degrees: 55...63

Testing:  
1st rack travel in: 9.90  
Speed rpm : 1455...1465  
2nd rack travel in: 4.00  
Speed rpm : 1560...1590  
4th rack travel in: 1700  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 10...18

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.10  
Speed rpm : 300  
Rack travel in mm : 7.50...7.70

CONSTANT REGULATION  
Speed rpm : 370...520

#### START CUT-OUT

Speed 1/min : 220 (240)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.90  
Speed rpm : 1455...1465

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 71.0...81.0  
1000 s: (68.0...84.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 a  
 Edition : 11.07.88  
 Replaces : 16.10.87  
 Test oil : ISO-4113  
 Combination no. : 0 400 846 522  
 Injection pump  
 Pump designation : PES6A90D41ORS2667  
 EP type number : 0 410 896 080  
 Governor  
 Governor design. : RQV300...1400AB1065-4L  
 Governor no. : 0 420 212 168

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 100.0  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35  
 : (2.20...2.40)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 11.10...11.20

Del. quantity cm<sup>3</sup>/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.4)

2nd speed rpm : 300.0

Rack travel in mm : 8.9...9.1

Del. quantity cm<sup>3</sup>/ : 0.9...1.3  
 100 s: (0.7...1.5)

Spread cm<sup>3</sup> : 0.2

100 s: (0.4)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 0.80...1.30

2nd speed rpm : 500  
 travel mm : 2.30...2.80

3rd speed rpm : 750  
 travel mm : 4.10...4.30

4th speed rpm : 1500  
 travel mm : 8.50...8.60

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1400  
 Del. quantity : 63.5...64.5  
 1000 : (61.5...66.5)  
 Spread cm<sup>3</sup> : 3.00  
 1000 : (4.50)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 61...69

Testing:  
 1st rack travel in: 10.10

Speed rpm : 1460...1470  
2nd rack travel in: 4.00  
Speed rpm : 1560...1590  
4th rack travel in: 1700  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 21...29

#### Testing:

Speed rpm : 100  
Minimum rack travel: 10.30  
Speed rpm : 300  
Rack travel in mm : 8.90...9.10

#### CONSTANT REGULATION

Speed rpm : 540...680

#### TORQUE CONTROL

Dimension a mm : 1.10  
Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 11.10...11.20  
2nd speed rpm : 500  
Rack travel in m: 12.20...12.30  
3rd speed rpm : 900  
Rack travel in m: 11.70...11.90  
4th speed rpm : 1100  
Rack travel in m: 11.40...11.70

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 52.0...54.0  
1000 s: (49.5...56.5)  
Speed rpm : 900  
Del.quantity cm<sup>3</sup>/ : 55.0...58.0  
1000 s: (52.5...60.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.10  
Speed rpm : 1460...1470

#### STARTING FUEL DELIVERY

Speed rpm : 100

G03

Del.quantity cm<sup>3</sup>/ : 78.0...88.0  
1000 s: (75.0...91.0)  
Rack travel in mm : 17.00...17.40

Remarks:

:  
Set shutoff stop to contact at  
3.0...3.5 mm control-rod travel.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 9,0 f  
Edition : 28.8.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 848 020  
Injection pump  
Pump designation : PES8A75D32ORS2463  
EP type number : 0 410 879 989  
Governor  
Governor design. : RQV300...1500AB912DR  
Governor no. : 0 420 215 063

Customer-spec. information  
Customer : IHC

Engine : DV 550 C

1st version kW : 132.5  
Rated speed : 3000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Inlet press., bar : 2.4

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05 \*  
(1.90...2.10)  
Rack travel in mm : 10.70  
Prestroke mm : \*\*  
Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-  
280-315  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 9.65...9.75

Del. quantity cm<sup>3</sup>/ : 5.8...5.9

100 s : (-)

Spread cm<sup>3</sup> : 0.7

100 s : (-)

2nd speed rpm : 300

Rack travel in mm : 9.60...9.70

Del. quantity cm<sup>3</sup>/ : 0.1...1.5 \*

100 s : (-)

3rd speed rpm : 300

Rack travel in mm : 9.20...9.40

Del. quantity cm<sup>3</sup>/ : 3.7...4.6 \*\*

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1600

Rack travel in mm : 15.00...18.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del. quantity : 58.8...59.8

1000 : (-)

Spread cm<sup>3</sup> : 7.0

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 64...72

Testing:

1st rack travel in: 8.70

Speed rpm : 1600...1610

2nd rack travel in: 6.25

Speed rpm : 1785...1815

4th rack travel in: 2000

Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever

position degrees: 6...14

## Testing:

Speed rpm : 200  
Minimum rack trave: 7.40  
Speed rpm : 300  
Rack travel in mm : 5.40...7.30  
Rack travel in mm : 3.05  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 2.60

## TORQUE CONTROL

Dimension a mm : 0.35  
Torque control curve - 1st version  
1st speed rpm : 1500  
Rack travel in m: 9.60...9.80  
2nd speed rpm : 1000  
Rack travel in m: 10.00...10.10  
3rd speed rpm : 700  
Rack travel in m: 10.00...10.10

## START CUT-OUT

Speed 1/min : 150...230

## FUEL DELIVERY CHARACTERISTICS

### 1st version

Speed rpm : 1000  
Del.quantity cm3/ : 50.5...52.5  
1000 s: (-)  
Spread cm3 : 7.0  
1000 s: (-)  
Speed rpm : 300  
Del.quantity cm3/ : 1.0...15.0 \*  
1000 s: (-)  
Speed rpm : 300  
Del.quantity cm3/ : 37.0...46.0 \*\*  
1000 s: (-)

## BREAKAWAY

### 1st version

1mm rack travel less than

full load rack tr: 8.70  
Speed rpm : 1600...1610

## INTERMEDIATE RATED SPEED

### Control lever

position degrees: 61...69  
Rack travel in mm : 16.30  
Speed rpm : 1490...1510  
Rack travel in mm : 7.55  
Speed rpm : 1740...1760

## STARTING FUEL DELIVERY

GOS

Speed rpm : 100  
Del.quantity cm3/ : 110.0...132.0\*\*  
1000 s: (-)  
Rack travel in mm : 21.00

## HIGH IDLE

### 1st version

Speed rpm : 1650  
Rack travel in mm : 7.00...8.00

## LOW IDLE

Speed rpm : 300  
Del.quantity cm3/ : 15.4...19.4 \*\*  
1000 s: (-)

## Remarks:

\* = Cylinders 1,7,6 and 4

\*\* = Cylinders 2,8,3 and 5

Port opening at 3.95...4.00 mm plunger lift

Adjust stop lever to 0.5...1.0 mm before stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 9,0 f 5  
Edition : 28.8.89  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 400 848 020

Injection pump  
Pump designation : PES8A75D32ORS2463  
EP type number : 0 410 879 989  
Governor  
Governor design. : RQV300...1500AB912DR

Customer-spec. information  
Customer : IHC

Engine : DV 550 C

1st version kW : 147.2  
Rated speed : 3000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Inlet press., bar : 2.4

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05 \*  
: (1.90...2.10)  
Rack travel in mm : 10.70  
Prestroke mm : \*\*  
Rack travel in mm : 10.70  
Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-  
280-315  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 10.65...10.75

Del. quantity cm<sup>3</sup>/ : 6.8...6.9

100 s: (-)

Spread cm<sup>3</sup> : 0.6

100 s: (-)

2nd speed rpm : 300  
Rack travel in mm : 9.00...9.50  
Del. quantity cm<sup>3</sup>/ : 0.1...1.5 \*

100 s: (-)

3rd speed rpm : 300  
Rack travel in mm : 9.00...9.50  
Del. quantity cm<sup>3</sup>/ : 3.7...4.6 \*\*  
100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1600

Rack travel in mm : 15.00...18.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del. quantity : 68.0...69.0

1000 : (-)

Spread cm<sup>3</sup> : 6.0

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 64...72

Testing:

1st rack travel in: 9.70

Speed rpm : 1600...1610

2nd rack travel in: 6.25

Speed rpm : 1785...1815

4th rack travel in: 2000

Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 200  
Minimum rack trave: 7.40  
Speed rpm : 300  
Rack travel in mm : 5.40...7.30  
Rack travel in mm : 3.05  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 2.60

START CUT-OUT

Speed 1/min : 150...230

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.70  
Speed rpm : 1600...1610

INTERMEDIATE RATED SPEED

Control lever  
position degrees: 61...69  
Rack travel in mm : 16.30  
Speed rpm : 1490...1510  
Rack travel in mm : 7.55  
Speed rpm : 1740...1760

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 110.0...134.0\*\*  
1000 s: (-)  
Rack travel in mm : 21.00

HIGH IDLE

1st version  
Speed rpm : 1650  
Rack travel in mm : 7.00...8.00

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Del.quantity cm3/ : 8.0...10.0 \*\*  
1000 s: (-)

Remarks:

\* = Cylinders 1,7,6 and 4

\*\* = Cylinders 2,8,3 and 5

Port opening at 3.95...4.00 mm plunger  
lift

Adjust stop lever to 0.5...1.0 mm  
before stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 9,0 f 1  
 Edition : 28.8.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 848 022  
 Injection pump  
 Pump designation : PES8A75D32ORS2463  
 Governor  
 Governor design. : RQV300...1500AB913DR

Customer-spec. information  
 Customer : IHC

Engine : DV 550 C

1st version kW : 117.8  
 Rated speed : 3000

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Inlet press., bar : 2.4

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05 \*  
 : (1.90...2.10)  
 Rack travel in mm : 10.70  
 Prestroke mm : \*\*  
 Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-

608

280-315  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 9.30...9.40

Del. quantity cm<sup>3</sup>/ : 4.9...5.0

100 s: (-)

Spread cm<sup>3</sup> : 0.7

100 s: (-)

2nd speed rpm : 300  
 Rack travel in mm : 9.20...9.40  
 Del. quantity cm<sup>3</sup>/ : 1.1...1.5 \*  
 100 s: (-)

3rd speed rpm : 300  
 Rack travel in mm : 9.20...9.40  
 Del. quantity cm<sup>3</sup>/ : 3.6...4.6 \*\*  
 100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1600

Rack travel in mm : 15.00...18.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1500  
 Del. quantity : 49.5...50.5  
 1000 : (-)  
 Spread cm<sup>3</sup> : 7.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 64...72

Testing:  
 1st rack travel in: 8.35  
 Speed rpm : 1605...1615  
 2nd rack travel in: 6.25  
 Speed rpm : 1785...1815  
 4th rack travel in: 2000  
 Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
 position degrees: 6...14

Testing:

Speed rpm : 200  
Minimum rack travel: 7.40  
Speed rpm : 300  
Rack travel in mm : 5.40...7.30  
Rack travel in mm : 3.05  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 2.60

#### TORQUE CONTROL

Dimension a mm : 0.45  
Torque control curve - 1st version  
1st speed rpm : 1500  
Rack travel in mm : 9.30...9.40  
2nd speed rpm : 1000  
Rack travel in mm : 9.80...10.00  
3rd speed rpm : 700  
Rack travel in mm : 9.80...10.00

#### START CUT-OUT

Speed 1/min : 150...230

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1000  
Del. quantity cm<sup>3</sup>/ : 46.5...48.5  
1000 s: (-)  
Spread cm<sup>3</sup> : 6.0  
1000 s: (-)  
Speed rpm : 300  
Del. quantity cm<sup>3</sup>/ : 1.0...15.0 \*  
1000 s: (-)  
Speed rpm : 300  
Del. quantity cm<sup>3</sup>/ : 36.0...46.0 \*\*  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack travel: 8.35  
Speed rpm : 1605...1615

#### INTERMEDIATE RATED SPEED

##### Control lever

position degrees: 61...69  
Rack travel in mm : 16.30  
Speed rpm : 1490...1510  
Rack travel in mm : 7.55  
Speed rpm : 1740...1760

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 112.0...135.0\*\*  
1000 s: (-)  
Rack travel in mm : 21.00

#### HIGH IDLE

##### 1st version

Speed rpm : 1650  
Rack travel in mm : 7.00...8.00

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Del. quantity cm<sup>3</sup>/ : 17.0...21.0 \*\*  
1000 s: (-)

#### Remarks:

\* = Cylinders 1,7,6 and 4

\*\* = Cylinders 2,8,3 and 5

Port opening at 3.95...4.00 mm plunger lift

Adjust stop lever to 0.5...1.0 mm before stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 1 g 4  
 Edition : 27.06.88  
 Replaces : 30.03.87  
 Test oil : ISO-4113

Combination no. : 0 400 866 111

Injection pump  
 Pump designation : PES6A85D410/3RS2611  
 EP type number : 0 410 886 902  
 Governor  
 Governor design. : RSV325...1200A0C2148  
 L  
 Governor no. : 0 420 232 293

Customer-spec. information  
 Customer : KHD

Engine : F6L913

1st version kW : 84.0  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60  
 : (2.45...2.65)

Rack travel in mm : 9.0...12.0  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.3...11.4

Del. quantity cm<sup>3</sup>/ : 6.9...7.0

100 s: (6.7...7.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.45)

2nd speed rpm : 325

Rack travel in mm : 8.4...8.6

Del. quantity cm<sup>3</sup>/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm<sup>3</sup> : 0.2

100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 69.5...70.5

1000 : (67.5...72.5)

Spread cm<sup>3</sup> : 3.0

1000 : (4.5)

## RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 10.30

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1315...1345

4th rack travel in: 1425

Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever

position degrees: 28...36  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 8.50  
Speed rpm : 325  
Rack travel in mm : 8.40...8.60  
Rack travel in mm : 2.00  
Speed rpm : 450...510

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200  
Rack travel in m: 11.30...11.40  
2nd speed rpm : 500  
Rack travel in m: 11.80...11.90  
3rd speed rpm : 975  
Rack travel in m: 11.60...11.90

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 63.5...65.5  
1000 s: (61.0...68.0)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30  
Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 16.90...17.30

Remarks:

: DX

#### APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MWM 6.2 e 3  
 Edition : 01.07.88  
 Replaces : 12.09.86  
 Test oil : ISO-4113

Combination no. : 0 400 866 114

Injection pump  
 Pump designation : PES6A90D320/3RS2660  
 EP type number : 0 410 896 078  
 Governor  
 Governor design. : RSV325...1200A0C2182  
 -1R  
 Governor no. : 0 420 233 192

Customer-spec. information  
 Customer : MWM

Engine : TD226B-6

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.95...3.05  
 : (2.90...3.10)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.50...4.50

## BASIC SETTING

1st speed rpm : 1200

---

Rack travel in mm : 12.00...12.10

---

Del. quantity cm<sup>3</sup>/ : 9.7...9.8

---

100 s: (9.5...10.0)

---

Spread cm<sup>3</sup> : 0.30

---

100 s: (0.45)

---

2nd speed rpm : 325  
 Rack travel in mm : 6.9...7.1  
 Del. quantity cm<sup>3</sup>/ : 0.8...1.4  
 100 s: (0.6...1.6)

---

Spread cm<sup>3</sup> : 0.25  
 100 s: 0.40

---

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 3.25

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1200  
 Aneroid pressure h: 700  
 Del. quantity : 97.5...98.5  
 1000 : (95.5...100.5)

---

Spread cm<sup>3</sup> : 3.0  
 1000 : 4.5

---

## RATED SPEED

1st version  
 Control lever  
 position degrees: 41...49

Testing:  
 1st rack travel in: 11.00  
 Speed rpm : 1240...1250

2nd rack travel in: 4.00  
Speed rpm : 1275...1305  
3rd rack travel in: 4.00  
Speed rpm : 1300...1330  
4th rack travel in: 1465  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 14...22  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 6.50

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 325  
Rack travel in mm : 6.90...7.10  
Rack travel in mm : 2.00  
Speed rpm : 495...555

#### TORQUE CONTROL

Dimension a mm : 0.30  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 12.00...12.10  
2nd speed rpm : 500  
Rack travel in m: 12.30...12.40  
3rd speed rpm : 1115  
Rack travel in m: 12.10...12.30

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 12.30...12.40

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.10...10.20  
2nd pressure hPa : 275  
Rack travel in m: 11.70...11.80  
3rd pressure hPa : 80  
Rack travel in m: 10.60...10.80

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 275  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 83.0...85.0  
1000 s: (80.5...87.5)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 135.0...145.0  
1000 s: (132.0...148.0)  
Rack travel in mm : 19.50...21.00

#### Remarks:

#### APPLICATION

Tractor (tractor engines)

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : CAS 4,9 b 4  
Edition : 04.08.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 874 072  
  
Injection pump  
Pump designation : PES4A85C420LS2054  
Governor  
Governor design. : RSV300...950A2B262DR

Customer-spec. information  
Customer : CASE

Engine : A 301 D

### TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve  
: WS 187P (CASE)

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

### BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

### BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 9,00  
Del. quantity cm<sup>3</sup>/ : 6,55...7,05  
100 s : (-)  
  
Spread cm<sup>3</sup> : 0,4  
100 s : (-)  
  
2nd speed rpm : 1000  
Rack travel in mm : 15,00  
Del. quantity cm<sup>3</sup>/ : 14,05...14,85  
100 s : (-)  
3rd speed rpm : 200  
Rack travel in mm : 6,00  
Del. quantity cm<sup>3</sup>/ : 1,3...2,3  
100 s : (-)

### GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

### FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 930  
Del. quantity : 71,0...73,0  
1000 : (-)

### RATED SPEED

1st version  
Control lever  
position degrees: 40...48

Testing:  
1st rack travel in: 7,50  
Speed rpm : 1085...1015  
2nd rack travel in: 2,80  
Speed rpm : 1065...1095  
4th rack travel in: 1160  
Speed rpm : 0,00...1,00

### LOW IDLE 1

Control lever  
position degrees: 22...30  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5,50

full-load delivery with torque-control

Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 300  
Rack travel in mm : 5,20...5,80  
Rack travel in mm : 2.85  
Speed rpm : 390...410  
Speed rpm : 530  
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 930  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,40...9,60  
3rd speed rpm : 600  
Rack travel in m: 9,80...10,00  
4th speed rpm : 400  
Rack travel in m: 9,80...10,10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 80,0...83,0  
1000 s: (-)  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : 79,0...83,0  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 950...965

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 80,0...90,0

HIGH IDLE

1st version

Speed rpm : 1040  
Del.quantity cm<sup>3</sup>/ : 13,5...23,5  
1000 s: (-)

Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : CAS 4,9 b 3  
Edition : 04.08.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 874 083  
  
Injection pump  
Pump designation : PES4A85C420LS2054  
Governor  
Governor design. : RSV300...975A2B262

Customer-spec. information  
Customer : CASE

Engine : A 301 D

### TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
                  : (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

### BASIC SETTING

1st speed rpm : 1000  
-----  
Rack travel in mm : 9,00  
-----  
Del. quantity cm<sup>3</sup>/ : 6,55...7,05  
-----  
100 s : (-)  
-----  
Spread cm<sup>3</sup> : 0,4  
-----  
100 s : (-)  
-----  
2nd speed rpm : 1000  
Rack travel in mm : 15,00  
Del. quantity cm<sup>3</sup>/ : 14,05...14,85  
100 s : (-)  
3rd speed rpm : 1000  
Rack travel in mm : 6,00  
Del. quantity cm<sup>3</sup>/ : 2,3...3,1  
100 s : (-)

### GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

### FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 955  
Del. quantity : 70,0...72,0  
1000 : (-)

### RATED SPEED

1st version  
Control lever  
position degrees: 40...48

Testing:  
1st rack travel in: 7,60  
Speed rpm : 1005...1035  
2nd rack travel in: 3,70  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0,00...1,00

### LOW IDLE 1

Control lever  
position degrees: 22...30  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5,50

control-rod travel. Increase in

Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 300  
Rack travel in mm : 5,20...5,80  
Rack travel in mm : 2,85  
Speed rpm : 390...410  
Speed rpm : 530  
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 955  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,60...9,80  
3rd speed rpm : 600  
Rack travel in m: 9,90...10,20  
4th speed rpm : 400  
Rack travel in m: 9,90...10,20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650  
Del.quantity cm3/ : 80,0...83,0  
1000 s: (-)  
Speed rpm : 550  
Del.quantity cm3/ : 77,5...81,5  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 975...990

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 80,0...90,0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1040  
Del.quantity cm3/ : 13,5...23,5  
1000 s: (-)

Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 1 a 1  
Edition : 04.08.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 874 101  
  
Injection pump  
Pump designation : PES4A80C420LS2263  
Governor  
Governor design. : RSV375...1000A2B539D  
R

Customer-spec. information  
Customer : CASE

Engine : A 267 BD

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm<sup>3</sup>/ : 4,15...4,55

100 s : (-)

Spread cm<sup>3</sup> : 0,3

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm<sup>3</sup>/ : 6,85...7,65

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm<sup>3</sup>/ : 1,35...2,15

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Del. quantity : 60,0...62,0

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11,00

Speed rpm : 995...1025

2nd rack travel in: 5,10

Speed rpm : 1085...1115

4th rack travel in: 1240

Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 6,00

#### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 5,70...6,30  
Rack travel in mm : 3,95  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 980  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,30...9,50  
3rd speed rpm : 500  
Rack travel in m: 9,40...9,70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 61,5...64,5  
1000 s: (-)  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : <63,5  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1010

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 111,0...117,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1110  
Del.quantity cm<sup>3</sup>/ : 6,5...14,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del.quantity cm<sup>3</sup>/ : 12,5...16,5  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : CAS 4,9 a 2  
Edition : 04.08.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 874 106  
  
Injection pump  
Pump designation : PES4A85C420LS2263  
Governor  
Governor design. : RSV375...975A2B543DR

Customer-spec. information  
Customer : CASE

Engine : A 301 BD

### TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

### BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
                  : (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

### BASIC SETTING

1st speed rpm : 1000  
-----  
Rack travel in mm : 9,00  
-----  
Del.quantity cm<sup>3</sup>/ : 4,15...4,55  
-----  
100 s : (-)  
-----  
Spread cm<sup>3</sup> : 0,4  
-----  
100 s : (-)  
-----  
2nd speed rpm : 1000  
Rack travel in mm : 12,00  
Del.quantity cm<sup>3</sup>/ : 7,25...8,05  
100 s : (-)  
3rd speed rpm : 200  
Rack travel in mm : 6,00  
Del.quantity cm<sup>3</sup>/ : 0,95...1,75  
100 s : (-)

### GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

### FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 975  
Del.quantity : 62,0...64,0  
1000 : (-)

### RATED SPEED

1st version  
Control lever  
position degrees: 39...47

Testing:  
1st rack travel in: 10,50  
Speed rpm : 1000...1030  
2nd rack travel in: 4,10  
Speed rpm : 1085...1115  
4th rack travel in: 1200  
Speed rpm : 0,00...1,00

### LOW IDLE 1

Control lever  
position degrees: 22...30  
Setting point w/out bumper spring  
Speed rpm : 375  
Rack travel in mm : 7,50

### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,20...7,80  
Rack travel in mm : 5,25  
Speed rpm : 440...460  
Speed rpm : 640  
Maximum rack travel: 1,00

### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 975  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 450  
Rack travel in m: 10,10...10,40

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 74,0...77,0  
1000 s: (-)  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : <76,0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1015

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 126,0...132,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1075  
Del. quantity cm<sup>3</sup>/ : 10,5...19,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del. quantity cm<sup>3</sup>/ : 15,5...19,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 4,9 a 3  
 Edition : 04.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 874 137  
 Injection pump  
 Pump designation : PES4A85C420LS2263  
 Governor  
 Governor design. : RSV375...975A2B543DR

Customer-spec. information  
 Customer : CASE

Engine : A 301 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,15...4,55  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 0,95...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 975  
 Del. quantity : 62,0...64,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 39...47

Testing:  
 1st rack travel in: 10,50  
 Speed rpm : 1000...1030  
 2nd rack travel in: 4,10  
 Speed rpm : 1085...1115  
 4th rack travel in: 1200  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 22...30  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 7,50

### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,20...7,80  
Rack travel in mm : 5,25  
Speed rpm : 440...460  
Speed rpm : 640  
Maximum rack travel: 1,00

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 975  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 450  
Rack travel in m: 10,10...10,40

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 74,0...77,0  
1000 s: (-)  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : <76,0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1015

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 126,0...132,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1075  
Del.quantity cm<sup>3</sup>/ : 10,5...19,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm<sup>3</sup>/ : 15,5...19,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 1 a  
Edition : 04.08.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 874 153  
  
Injection pump  
Pump designation : PES4A80C420LS2263  
Governor  
Governor design. : RSV375...1000A2B518D  
R

Customer-spec. information  
Customer : CASE

Engine : A-267 BD

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve  
: WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-240  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 9,00  
Del. quantity cm3/ : 4,15...4,55  
100 s : (-)  
Spread cm3 : 0,3  
100 s : (-)  
  
2nd speed rpm : 1000  
Rack travel in mm : 12,00  
Del. quantity cm3/ : 6,85...7,65  
100 s : (-)  
3rd speed rpm : 200  
Rack travel in mm : 6,00  
Del. quantity cm3/ : 1,35...2,15  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Del. quantity : 62,5...64,5  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 42...50

Testing:  
1st rack travel in: 10,90  
Speed rpm : 1025...1055  
2nd rack travel in: 4,60  
Speed rpm : 1085...1115  
4th rack travel in: 1200  
Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
position degrees: 18...26  
Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 6,10

#### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 5,80...6,40  
Rack travel in mm : 3,30  
Speed rpm : 440...460  
Speed rpm : 580  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,60...9,80  
3rd speed rpm : 500  
Rack travel in m: 9,90...10,20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 71,5...76,5  
1000 s: (-)  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : <74,5  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9,00  
Speed rpm : 1040

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 111,0...117,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1100  
Del.quantity cm<sup>3</sup>/ : 7,5...15,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del.quantity cm<sup>3</sup>/ : 12,5...16,5  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 p  
 Edition : 04.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 874 158  
 Injection pump  
 Pump designation : PES4A85D42OLS2263  
 Governor  
 Governor design. : RSV375...975A2B543DR

Customer-spec. information  
 Customer : CASE

Engine : A 504 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,15...4,55  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 0,95...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 975  
 Del. quantity : 62,0...64,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 39...47

Testing:  
 1st rack travel in: 10,50  
 Speed rpm : 1000...1030  
 2nd rack travel in: 4,10  
 Speed rpm : 1085...1115  
 4th rack travel in: 1200  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 22...30  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 7,50

### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,20...7,80  
Rack travel in mm : 5,25  
Speed rpm : 440...460  
Speed rpm : 640  
Maximum rack trave: 1,00

### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 975  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 450  
Rack travel in m: 10,10...10,40

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 600  
Del.quantity cm3/ : 74,0...77,0  
1000 s: (-)  
Speed rpm : 500  
Del.quantity cm3/ : <76,0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1015

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 126,0...132,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1075  
Del.quantity cm3/ : 10,5...18,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 15,5...19,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : CAS 5,5 e 5  
Edition : 04.08.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 874 159  
  
Injection pump  
Pump designation : PES4A85D42OLS2263  
Governor  
Governor design. : RSV375...1100A2B554D  
R

Customer-spec. information  
Customer : CASE

Engine : A-336 BD

### TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
                  : (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-240

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### BASIC SETTING

1st speed rpm : 1000  
-----  
Rack travel in mm : 9,00  
-----  
Del. quantity cm<sup>3</sup>/ : 4,15...4,55  
-----  
100 s : (-)  
-----  
Spread cm<sup>3</sup> : 0,4  
-----  
100 s : (-)  
-----  
2nd speed rpm : 1000  
Rack travel in mm : 12,00  
Del. quantity cm<sup>3</sup>/ : 7,25...8,05  
100 s : (-)  
-----  
3rd speed rpm : 200  
Rack travel in mm : 6,00  
Del. quantity cm<sup>3</sup>/ : 0,95...1,95  
100 s : (-)

### GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

### FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Del. quantity : 80,5...83,0  
1000 : (-)

### RATED SPEED

1st version  
Control lever  
position degrees: 35...43

Testing:  
1st rack travel in: 12,30  
Speed rpm : 1125...1155  
2nd rack travel in: 4,90  
Speed rpm : 1185...1215  
4th rack travel in: 1300  
Speed rpm : 0,30...1,00

### LOW IDLE 1

Control lever  
position degrees: 13...21  
Setting point w/out bumper spring  
Speed rpm : 375  
Rack travel in mm : 7,70

### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,40...8,00  
Rack travel in mm : 4,35  
Speed rpm : 440...460  
Speed rpm : 580  
Maximum rack trave: 1,00

### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 900  
Rack travel in m: 9,30...9,50  
3rd speed rpm : 500  
Rack travel in m: 9,40...9,70

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 84,0...90,0  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <89,0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140...1155

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 124,0...134,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1200  
Del.quantity cm3/ : 6,5...14,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 18,5...22,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 4,9 a 1  
Edition : 01.08.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 874 160  
Injection pump  
Pump designation : PES4A85D42OLS2263  
Governor  
Governor design. : RSV375...1000A2B547D  
R

Customer-spec. information  
Customer : CASE

Engine : A 301 BD

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : WS 187P (CASE)  
Inlet press., bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175  
Test lines : 9 681 230 706  
Outside diameter  
x Wall thickness  
x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 9,00  
Del. quantity cm3/ : 4,35...4,55  
100 s : (-)  
2nd speed rpm : 200  
Rack travel in mm : 6,00  
Del. quantity cm3/ : 1,15...1,75  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1000  
Del. quantity : 70,0...71,0  
1000 : (69,0...72,0)

## RATED SPEED

1st version  
Control lever  
position degrees: 37...45

Testing:  
1st rack travel in: 11.20  
Speed rpm : 1030...1050  
2nd rack travel in: 5,60  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 375  
Rack travel in mm : 7,50

Testing:  
Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,40...7,60

Rack travel in mm : 4,00  
Speed rpm : 450...470  
Speed rpm : 600  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000  
Rack travel in m: 9,00  
2nd speed rpm : 300  
Rack travel in m: 9,80...9,90  
3rd speed rpm : 400  
Rack travel in m: 10,50...10,70

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 85,5...88,5  
1000 s: (84,5...89,5)  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : <89,5  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1040...1055

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 124,0...135,0  
1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1090  
Del. quantity cm<sup>3</sup>/ : 9,5...17,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Del. quantity cm<sup>3</sup>/ : 15,5...19,5  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 1 a 2  
 Edition : 04.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 874 162  
 Injection pump  
 Pump designation : PES4A80D420LS2263  
 Governor  
 Governor design. : RSV375...1000A2B518D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A 267 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270

H04

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,15...4,55  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 6,85...7,65  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 1,35...2,15  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1000  
 Del. quantity : 62,5...64,5  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 37...45

Testing:  
 1st rack travel in: 10,90  
 Speed rpm : 1025...1055  
 2nd rack travel in: 4,60  
 Speed rpm : 1085...1115  
 4th rack travel in: 1200  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 18...26  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 6,10

### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 5,80...6,40  
Rack travel in mm : 3,30  
Speed rpm : 440...460  
Speed rpm : 580  
Maximum rack trave: 1,00

### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,60...9,80  
3rd speed rpm : 500  
Rack travel in m: 9,90...10,20

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 71,5...76,5  
1000 s: (-)  
Speed rpm : 550  
Del.quantity cm3/ : <74,5  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1040

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 111,0...117,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1100  
Del.quantity cm3/ : 7,5...15,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 12,5...16,5  
1000 s: (-)

### H05

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 5,5 e 4  
Edition : 04.08.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 874 173  
Injection pump  
Pump designation : PES4A85D420LS2263  
Governor  
Governor design. : RSV375...1100A2B626D  
R

Customer-spec. information  
Customer : CASE

Engine : A 336 BD

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 9,00  
Del. quantity cm3/ : 4,15...4,55  
100 s : (-)  
Spread cm3 : 0,4  
100 s : (-)  
2nd speed rpm : 1000  
Rack travel in mm : 12,00  
Del. quantity cm3/ : 7,25...8,05  
100 s : (-)  
3rd speed rpm : 200  
Rack travel in mm : 6,00  
Del. quantity cm3/ : 0,95...1,75  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Del. quantity : 92,5...94,5  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 38...46

Testing:  
1st rack travel in: 13,20  
Speed rpm : 1125...1155  
2nd rack travel in: 5,00  
Speed rpm : 1185...1215  
4th rack travel in: 1280  
Speed rpm : 0,00...1,50

## LOW IDLE 1

Control lever  
position degrees: 15...23  
Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,80

Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,5...8,1  
Rack travel in mm : 4.15  
Speed rpm : 440...460  
Speed rpm : 560  
Maximum rack trave: 1,50

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 500  
Rack travel in m: 9,40...9,70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 98,5...102,5  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <101,5  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 126,0...132,0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200  
Del.quantity cm3/ : 8,5...12,5  
1000 s: (-)

LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 18,5...22,5  
1000 s: (-)

Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 5,5 e 3  
Edition : 07.08.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 874 175  
  
Injection pump  
Pump designation : PES4A85D420LS2263  
Governor  
Governor design. : RSV375...1100A2B649D  
R

Customer-spec. information  
Customer : CASE

Engine : A 336 BD

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : WS 187P (CASE)  
  
Inlet press., bar : 1.25  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening  
pressure, bar : 172...175  
  
Test lines : 9 681 230 706  
  
Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
-----  
Rack travel in mm : 9,00  
-----  
Del. quantity cm3/ : 4,15...4,55  
-----  
100 s : (-)  
-----  
Spread cm3 : 0,4  
-----  
100 s : (-)  
-----  
2nd speed rpm : 1000  
Rack travel in mm : 12,00  
Del. quantity cm3/ : 7,25...8,05  
100 s : (-)  
3rd speed rpm : 200  
Rack travel in mm : 6,00  
Del. quantity cm3/ : 0,95...1,75  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Del. quantity : 73,5...75,5  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 39...47

Testing:  
1st rack travel in: 11,50  
Speed rpm : 1125...1155  
2nd rack travel in: 5,10  
Speed rpm : 1185...1215  
4th rack travel in: 1300  
Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever  
position degrees: 18...26  
Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,20

#### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,90...7,50  
Rack travel in mm : 4,40  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 900  
Rack travel in m: 9,30...9,50  
3rd speed rpm : 500  
Rack travel in m: 9,40...9,70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 76,5...79,5  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : <78,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than  
full load rack tr: 8,00  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 124,0...134,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 6,5...14,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del.quantity cm<sup>3</sup>/ : 15,5...19,5  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 5,5 e 2  
 Edition : 31.07.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 874 176  
 Injection pump  
 Pump designation : PES4A85D420LS2263  
 Governor  
 Governor design. : RSV375...1100A2B650D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-336BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,35...4,55  
 100 s: (-)  
 2nd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 1,15...1,75  
 100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 81,0...82,0  
 1000 : (80,0...83,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 35...43

Testing:  
 1st rack travel in: 12.15  
 Speed rpm : 1130...1150  
 2nd rack travel in: 3,30  
 Speed rpm : 1205...1235  
 4th rack travel in: 1280  
 Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
 position degrees: 13...21  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 7,70

Testing:  
 Speed rpm : 150  
 Minimum rack travel: 19,00  
 Speed rpm : 375  
 Rack travel in mm : 7,50...7,80

Rack travel in mm : 2.60  
Speed rpm : 470...490  
Speed rpm : 600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 900  
Rack travel in m: 9,30...9,50  
3rd speed rpm : 450  
Rack travel in m: 9,50...9,70

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 81,0...90,0  
1000 s: (86,0...91,0)  
Speed rpm : 650  
Del.quantity cm3/ : <89,0  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 124,0...134,0  
1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1200  
Del.quantity cm3/ : 6,50...14,50  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 18,5...22,5  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 5,5 d 3  
 Edition : 25.08.89  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 400 874 204

Injection pump  
 Pump designation : PES4A85D420LS2459  
 EP type number : 0 410 884 954  
 Governor  
 Governor design. : RSV375...1100A2B649D  
 R  
 Governor no. : 0 420 235 163

Customer-spec. information  
 Customer : CASE

Engine : A 336 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)

Rack travel in mm : 9,00...12,00

Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0,50 (0,75)

H12

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11,50

Del. quantity cm<sup>3</sup>/ : 7,5...7,6

100 s : (-)

Spread cm<sup>3</sup> : 0,3

100 s : (-)

2nd speed rpm : 375

Rack travel in mm : 7,20

Del. quantity cm<sup>3</sup>/ : 1,6...2,2

100 s : (-)

Spread cm<sup>3</sup> : 0,2

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 74,6...75,6

1000 : (-)

Spread cm<sup>3</sup> : 3,0

1000 : (-)

## RATED SPEED

1st version

Control lever  
 position degrees: 37...45

Testing:

1st rack travel in: 10,50

Speed rpm : 1140...1155

2nd rack travel in: 3,60

Speed rpm : 1205...1235

4th rack travel in: 1300

Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever  
 position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 6,70

### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,10...7,30  
Rack travel in mm : 3,00  
Speed rpm : 470...490  
Speed rpm : 600  
Maximum rack trave: 1,00

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11,50  
2nd speed rpm : 900  
Rack travel in m: 11,80...11,90  
3rd speed rpm : 500  
Rack travel in m: 11,95...12,25

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 75,8...78,8  
1000 s: (-)  
Spread cm3 : 4,0  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <78,2  
1000 s: (-)  
Spread cm3 : 4,0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 10,50  
Speed rpm : 1140...1155

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 129,0...135,0  
1000 s: (-)  
Rack travel in mm : 17,70...18,00

### HIGH IDLE

#### 1st version

Speed rpm : 1200  
Rack travel in mm : 4,90  
Del.quantity cm3/ : 6,3...12,3  
1000 s: (-)

Spread cm3 : 3,0  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 7,20  
Del.quantity cm3/ : 15,7...21,7  
1000 s: (-)  
Spread cm3 : 2,0  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 5,5 d 2  
 Edition : 25.08.89  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 400 874 205

Injection pump  
 Pump designation : PES4A85D42OLS2459  
 EP type number : 0 410 884 954  
 Governor  
 Governor design. : RSV375...1100A2B650D  
 R  
 Governor no. : 0 420 235 164

Customer-spec. information  
 Customer : CASE

Engine : A-336 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187 P (CASE)

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

---

Rack travel in mm : 12,05...12,15

---

Del. quantity cm3/ : 8,2...8,3

---

100 s : (-)

---

Spread cm3 : 0,3

---

100 s : (-)

---

2nd speed rpm : 375  
 Rack travel in mm : 7,50  
 Del. quantity cm3/ : 1,8...2,4  
 100 s : (-)  
 Spread cm3 : 0,2  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 82,0...83,0  
 1000 : (-)  
 Spread cm3 : 3,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 35...43

Testing:  
 1st rack travel in: 11,10  
 Speed rpm : 1140...1155  
 2nd rack travel in: 3,40  
 Speed rpm : 1205...1235  
 4th rack travel in: 1280  
 Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever  
position degrees: 13...21  
Setting point w/out bumper spring  
Speed rpm : 375  
Rack travel in mm : 7,20

#### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,60...7,80  
Rack travel in mm : 2,60  
Speed rpm : 470...490  
Speed rpm : 600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 12,10  
2nd speed rpm : 900  
Rack travel in m: 12,60...12,80  
3rd speed rpm : 450  
Rack travel in m: 12,80...13,00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 86,0...89,0  
1000 s: (-)  
Spread cm3 : 4,0  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <88,5  
1000 s: (-)  
Spread cm3 : 4,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11,10  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 128,0...134,0  
1000 s: (-)  
Rack travel in mm : 17,50...17,60

#### HIGH IDLE

1st version

H15

Speed rpm : 1200  
Rack travel in mm : 5,10  
Del.quantity cm3/ : 8,2...14,2  
1000 s: (-)  
Spread cm3 : 3,0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 7,50  
Del.quantity cm3/ : 18,0...24,0  
1000 s: (-)  
Spread cm3 : 2,0  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 5,5 d 1  
 Edition : 31.07.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 874 209  
 Injection pump  
 Pump designation : PES4A85D42OLS2459  
 Governor  
 Governor design. : RSV375...1000A2B762D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-336 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187 P (CASE)

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 12,60  
 Del. quantity cm3/ : 8,6...8,7  
 100 s : (8,4...8,8)  
 Spread cm3 : 0,3  
 100 s : (-)  
 2nd speed rpm : 375  
 Rack travel in mm : 8,00  
 Del. quantity cm3/ : 1,8...2,1  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1000  
 Del. quantity : 85,5...87,5  
 1000 : (84,5...88,5)  
 Spread cm3 : 3,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 37...45

Testing:  
 1st rack travel in: 11,60  
 Speed rpm : 1040...1060  
 2nd rack travel in: 2,70  
 Speed rpm : 1115...1145  
 4th rack travel in: 1200  
 Speed rpm : 0,30...1,70

## LOW IDLE 1

Control lever  
 position degrees: 16...24  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 8,00

Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,80...8,20  
Rack travel in mm : 2,95  
Speed rpm : 410...430  
Speed rpm : 600  
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 12,60  
2nd speed rpm : 700  
Rack travel in m: 13,10...13,40  
3rd speed rpm : 500  
Rack travel in m: 13,10...13,50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700  
Del.quantity cm3/ : 91,5...96,5  
1000 s: (90,5...97,5)  
Speed rpm : 600  
Del.quantity cm3/ : <95,0

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,60  
Speed rpm : 1040...1055

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 120,0...130,0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100  
Del.quantity cm3/ : 9,5...15,5  
1000 s: (-)

LOW IDLE

Rack travel in mm : 375  
Del.quantity cm3/ : 18,0...21,0  
1000 s: (-)

Remarks:

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# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 j 5  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 008  
 Injection pump  
 Pump designation : PES6A80C42OLS2054  
 Governor  
 Governor design. : RSV300...1000A2B187D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A 401 D

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 5,55...6,05  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 15,00  
 Del. quantity cm<sup>3</sup>/ : 11,55...12,85  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 1,35...2,25  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 980  
 Del. quantity : 63,5...65,5  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 42...50

Testing:  
 1st rack travel in: 7,70  
 Speed rpm : 1015...1045  
 2nd rack travel in: 4,00  
 Speed rpm : 1085...1115  
 4th rack travel in: 1180  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 19...27  
 Setting point w/out bumper spring

Speed rpm : 300  
Rack travel in mm : 6,00

spring retainer with 1 mm less

Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 300  
Rack travel in mm : 5,70...6,30  
Rack travel in mm : 2,30  
Speed rpm : 390...410  
Speed rpm : 500  
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,60...9,80  
3rd speed rpm : 700  
Rack travel in m: 9,80...10,10  
4th speed rpm : 400  
Rack travel in m: 9,80...10,10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700  
Del.quantity cm3/ : 70,0...74,0  
1000 s: (-)  
Speed rpm : 600  
Del.quantity cm3/ : 70,5...74,5  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1000...1015

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 77,0...85,0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1050  
Del.quantity cm3/ : 11,5...21,5  
1000 s: (-)

Remarks:

Adjustment without torque-control

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# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 j 6  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 022  
 Injection pump  
 Pump designation : PES6A85C420LS2054  
 Governor  
 Governor design. : RSV300...900A2B132DR

Customer-spec. information  
 Customer : CASE

Engine : A-401

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

H2O

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm<sup>3</sup>/ : 5,65...6,02

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 15,00

Del. quantity cm<sup>3</sup>/ : 11,55...12,85

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm<sup>3</sup>/ : 1,35...2,25

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 880

Del. quantity : 79,8...81,8

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 35...43

## LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6,50

Speed rpm : 300

Rack travel in mm : 6.40...6.60

## TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 9,00

2nd speed rpm : 700

Rack travel in m: 9,20...9,50

3rd speed rpm : 600

Rack travel in m: 9,60...9,90

4th speed rpm : 450

Rack travel in m: 9,70...10,00

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm<sup>3</sup>/ : 78,5...81,5

1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 900...915

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 77,0...86,0

1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 985

Del.quantity cm<sup>3</sup>/ : 10,0...18,0

1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f 8  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 077  
 Injection pump  
 Pump designation : PES6A80C420LS2264  
 Governor  
 Governor design. : RSV375...950A2B520DR

Customer-spec. information  
 Customer : CASE

Engine : A 401 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,15...4,55  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 6,85...7,65  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 1,35...2,15  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 930  
 Del. quantity : 61,5...63,5  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 39...47

Testing:  
 1st rack travel in: 8,50  
 Speed rpm : 985...1015  
 2nd rack travel in: 2,10  
 Speed rpm : 1085...1115  
 4th rack travel in: 1160  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 23...31  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 6,00

### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 5,70...6,30  
Rack travel in mm : 3,95  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 1,00

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 930  
Rack travel in m: 9,00  
2nd speed rpm : 750  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 450  
Rack travel in m: 9,80...10,10

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 70,0...73,0  
1000 s: (-)  
Speed rpm : 550  
Del.quantity cm3/ : <72,0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 960

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 111,0...115,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1040  
Del.quantity cm3/ : 10,5...18,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 12,5...15,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f11  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 079  
 Injection pump  
 Pump designation : PES6A85C420LS2264  
 Governor  
 Governor design. : RSV375...1100A2B517D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A 504 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values —

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,15...4,55  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 0,95...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 82,5...84,5  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 39...47

Testing:  
 1st rack travel in: 7,10  
 Speed rpm : 1165...1195  
 2nd rack travel in: 2,80  
 Speed rpm : 1235...1265  
 4th rack travel in: 1320  
 Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever  
 position degrees: 17...25  
 Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,50

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,20...7,80  
Rack travel in mm : 4,65  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,60...9,80  
3rd speed rpm : 400  
Rack travel in m: 9,60...9,90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 850  
Del.quantity cm3/ : 90,0...93,0  
1000 s: (-)  
Speed rpm : 750  
Del.quantity cm3/ : <93,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 124,0...134,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Del.quantity cm3/ : 14,5...22,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del.quantity cm3/ : 18,5...22,5  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f16  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 099  
 Injection pump  
 Pump designation : PES6A85D420LS2264  
 Governor  
 Governor design. : RSV375...925A2B544DR

Customer-spec. information  
 Customer : CASE

Engine : A-401 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

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## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm3/ : 4,15...4,55  
 100 s : (-)  
 Spread cm3 : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm3/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm3/ : 0,45...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 925  
 Del. quantity : 56,0...58,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 36...44

Testing:  
 1st rack travel in: 10,20  
 Speed rpm : 950...980  
 2nd rack travel in: 6,60  
 Speed rpm : 985...1015  
 4th rack travel in: 1120  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 20...28  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 6,60

### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,30...6,90  
Rack travel in mm : 4,05  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 1,00

### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 925  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 450  
Rack travel in m: 10,30...10,60

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 550  
Del.quantity cm3/ : 65,5...69,5  
1000 s: (-)  
Speed rpm : 450  
Del.quantity cm3/ : <68,0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 965

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 126,0...132,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1010  
Del.quantity cm3/ : 8,5...16,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 12,5...16,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f18  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 100  
 Injection pump  
 Pump designation : PES6A85C420LS2264  
 Governor  
 Governor design. : RSV375...1000A2B546D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-401 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,85...5,35  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 8,25...9,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 1,15...1,95  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 980  
 Del. quantity : 59,0...61,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 36...44

Testing:  
 1st rack travel in: 7,20  
 Speed rpm : 1035...1065  
 2nd rack travel in: 3,70  
 Speed rpm : 1085...1115  
 4th rack travel in: 1200  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 18...26  
 Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 6,50

#### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,20...6,80  
Rack travel in mm : 3,80  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 450  
Rack travel in m: 9,90...10,20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : 64,0...67,0  
1000 s: (-)  
Speed rpm : 550  
Del. quantity cm<sup>3</sup>/ : <66,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1020

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 126,0...132,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1090  
Del. quantity cm<sup>3</sup>/ : 4,5...12,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del. quantity cm<sup>3</sup>/ : 12,0...16,0  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f14  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 120  
 Injection pump  
 Pump designation : PES6A85C420LS2264  
 Governor  
 Governor design. : RSV375...950A2B553DR

Customer-spec. information  
 Customer : CASE

Engine : A 401 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

J02

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,15...4,55  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 0,95...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 950  
 Del. quantity : 59,0...61,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 36...44

Testing:  
 1st rack travel in: 10,40  
 Speed rpm : 975...1005  
 2nd rack travel in: 4,50  
 Speed rpm : 1035...1065  
 4th rack travel in: 1140  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 19...27  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 6,30

### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,00...6,60  
Rack travel in mm : 3,80  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 1,00

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 950  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 400  
Rack travel in m: 10,30...10,60

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 600  
Del.quantity cm3/ : 72,0...76,0  
1000 s: (-)  
Speed rpm : 500  
Del.quantity cm3/ : <74,5  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 990

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 126,0...132,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1045  
Del.quantity cm3/ : 6,5...14,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 12,5...16,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f12  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 134  
 Injection pump  
 Pump designation : PES6A85C42OLS2264  
 Governor  
 Governor design. : RSV375...1050A2B567D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-451 BDT (T/C)

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm3/ : 4,65...5,15  
 100 s : (-)  
 Spread cm3 : 0,4  
 100 s : (-)

2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm3/ : 8,45...9,45  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 9,00  
 Del. quantity cm3/ : 2,75...3,65  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Del. quantity : 96,0...98,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 35...43

Testing:  
 1st rack travel in: 12,10  
 Speed rpm : 1075...1105  
 2nd rack travel in: 5,40  
 Speed rpm : 1135...1165  
 4th rack travel in: 1260  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 14...22  
 Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,40

Del.quantity cm3/ : 15,5...19,5  
1000 s: (-)

#### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,10...7,70  
Rack travel in mm : 4,15  
Speed rpm : 440...460  
Speed rpm : 580  
Maximum rack trave: 1,00

Remarks:

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050  
Rack travel in m: 9,00  
2nd speed rpm : 900  
Rack travel in m: 9,10...9,30  
3rd speed rpm : 500  
Rack travel in m: 9,30...9,60

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 100,5...104,5  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <103,5  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1090

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 124,0...134,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1150  
Del.quantity cm3/ : 9,5...19,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

J05

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f15  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 135  
 Injection pump  
 Pump designation : PES6A85C420LS2264  
 Governor  
 Governor design. : RSV375...950A2B553DR

Customer-spec. information  
 Customer : CASE

Engine : A 401 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

J06

## BASIC SETTING

1st speed rpm : 1000  
 -----  
 Rack travel in mm : 9,00  
 -----  
 Del. quantity cm3/ : 4,15...4,55  
 -----  
 100 s : (-)  
 -----  
 Spread cm3 : 0,4  
 -----  
 100 s : (-)  
 -----  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm3/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm3/ : 0,95...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...C,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 950  
 Del. quantity : 59,0...61,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 36...44

Testing:  
 1st rack travel in: 10,40  
 Speed rpm : 975...1005  
 2nd rack travel in: 4,50  
 Speed rpm : 1035...1065  
 4th rack travel in: 1140  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 19...27  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 6,30

### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,00...6,60  
Rack travel in mm : 3,80  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 1,00

### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 950  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 400  
Rack travel in m: 10,30...10,60

### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600  
Del.quantity cm3/ : 72,0...76,0  
1000 s: (-)  
Speed rpm : 500  
Del.quantity cm3/ : <74,5  
1000 s: (-)

### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 990

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 126,0...132,0  
1000 s: (-)

### HIGH IDLE

1st version

Speed rpm : 1045  
Del.quantity cm3/ : 6,5...14,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 12,5...16,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f17  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 136  
 Injection pump  
 Pump designation : PES6A85D420LS2264  
 Governor  
 Governor design. : RSV375...925A2B544DR

Customer-spec. information  
 Customer : CASE

Engine : A-401 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm3/ : 4,15...4,55  
 100 s : (-)  
 Spread cm3 : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm3/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm3/ : 0,45...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 925  
 Del. quantity : 56,0...58,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 36...44

Testing:  
 1st rack travel in: 10,20  
 Speed rpm : 950...980  
 2nd rack travel in: 6,60  
 Speed rpm : 985...1015  
 4th rack travel in: 1120  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 20...28  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 6,60

### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,30...6,90  
Rack travel in mm : 4,05  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 1,00

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 925  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 450  
Rack travel in m: 10,30...10,60

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 550  
Del.quantity cm3/ : 65,5...69,5  
1000 s: (-)  
Speed rpm : 450  
Del.quantity cm3/ : <68,0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 965

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 126,0...132,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1010  
Del.quantity cm3/ : 8,5...16,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 12,5...16,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f19  
Edition : 07.08.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 876 137  
Injection pump  
Pump designation : PES6A85C420LS2264  
Governor  
Governor design. : RSV375...1000A2B546D  
R

Customer-spec. information  
Customer : CASE

Engine : A-401 BD

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness : 6,00X2,00X600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 9,00  
Del. quantity cm3/ : 4,85...5,35  
100 s : (-)  
Spread cm3 : 0,4  
100 s : (-)  
2nd speed rpm : 1000  
Rack travel in mm : 12,00  
Del. quantity cm3/ : 8,25...9,05  
100 s : (-)  
3rd speed rpm : 200  
Rack travel in mm : 6,00  
Del. quantity cm3/ : 1,15...1,95  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 980  
Del. quantity : 59,0...61,0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 36...44

Testing:  
1st rack travel in: 7,20  
Speed rpm : 1035...1065  
2nd rack travel in: 3,70  
Speed rpm : 1085...1115  
4th rack travel in: 1200  
Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
position degrees: 18...26  
Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 6,50

#### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,20...6,80  
Rack travel in mm : 3,80  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 980  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 450  
Rack travel in m: 9,90...10,20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 64,0...67,0  
1000 s: (-)  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : <66,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1020

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 126,0...132,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1090  
Del.quantity cm<sup>3</sup>/ : 4,5...12,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del.quantity cm<sup>3</sup>/ : 12,0...16,0  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f 3  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 139  
 Injection pump  
 Pump designation : PES6A85C420LS2264  
 Governor  
 Governor design. : RSV375...1100A2B517D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A 504 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm3/ : 4,15...4,55

100 s: (-)

Spread cm3 : 0,4

100 s: (-)

2nd speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm3/ : 7,25...8,05

100 s: (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm3/ : 0,95...1,75

100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 82,5...84,5

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 7,10

Speed rpm : 1165...1195

2nd rack travel in: 2,80

Speed rpm : 1235...1265

4th rack travel in: 1320

Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,50

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,20...7,80  
Rack travel in mm : 4,65  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,60...9,80  
3rd speed rpm : 400  
Rack travel in m: 9,60...9,90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 850  
Del.quantity cm<sup>3</sup>/ : 90,0...93,0  
1000 s: (-)  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : <93,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than  
full load rack tr: 8,00  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 124,0...134,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 14,5...22,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del.quantity cm<sup>3</sup>/ : 18,5...22,5  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f13  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 140  
 Injection pump  
 Pump designation : PES6A90C420LS2264  
 Governor  
 Governor design. : RSV375...1050A2B567D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-451 BDT (T/C)

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm3/ : 4,65...5,15

100 s: (-)

Spread cm3 : 0,4

100 s: (-)

2nd speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm3/ : 8,45...9,45

100 s: (-)

3rd speed rpm : 200

Rack travel in mm : 9,00

Del. quantity cm3/ : 2,75...3,65

100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 1050

Del. quantity : 96,0...98,0

1000 : (-)

## RATED SPEED

### 1st version

Control lever

position degrees: 35...43

### Testing:

1st rack travel in: 12,10

Speed rpm : 1075...1105

2nd rack travel in: 5,40

Speed rpm : 1135...1165

4th rack travel in: 1260

Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,40

Del.quantity cm3/ : 15,5...19,5  
1000 s: (-)

Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,10...7,70  
Rack travel in mm : 4,15  
Speed rpm : 440...460  
Speed rpm : 580  
Maximum rack trave: 1,00

Remarks:

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 9,00  
2nd speed rpm : 900  
Rack travel in m: 9,10...9,30  
3rd speed rpm : 500  
Rack travel in m: 9,30...9,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 100,5...104,5  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <103,5  
1000 s: (-)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1090

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 124,0...134,0  
1000 s: (-)

HIGH IDLE

1st version  
Speed rpm : 1150  
Del.quantity cm3/ : 9,5...19,5  
1000 s: (-)

LOW IDLE

Speed rpm : 375

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f 9  
Edition : 07.08.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 876 149  
Injection pump  
Pump designation : PES6A85C420LS2264  
Governor  
Governor design. : RSV375...1050A2B521D  
R

Customer-spec. information  
Customer : CASE

Engine : A-451 BD

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
assembly : 0 681 230 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 9,00  
Del. quantity cm3/ : 4,15...4,55  
100 s : (-)  
Spread cm3 : 0,4  
100 s : (-)  
2nd speed rpm : 1000  
Rack travel in mm : 12,00  
Del. quantity cm3/ : 7,25...8,05  
100 s : (-)  
3rd speed rpm : 200  
Rack travel in mm : 6,00  
Del. quantity cm3/ : 0,95...1,75  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1050  
Del. quantity : 76,0...78,0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 36...44

Testing:  
1st rack travel in: 11,60  
Speed rpm : 1075...1105  
2nd rack travel in: 5,20  
Speed rpm : 1135...1165  
4th rack travel in: 1260  
Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever  
position degrees: 16...24  
Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,50

Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,20...7,80  
Rack travel in mm : 4,50  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 500  
Rack travel in m: 9,60...9,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 82,5...86,5  
1000 s: (-)  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : <85,5  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 124,0...134,0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150  
Del.quantity cm<sup>3</sup>/ : 8,5...16,5  
1000 s: (-)

LOW IDLE

Speed rpm : 375

Del.quantity cm<sup>3</sup>/ : 15,5...19,5  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VMA 7,3 b  
Edition : 23.08.89  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 400 876 152

Injection pump  
Pump designation : PES6A85D410RS2332  
Governor  
Governor design. : RSV250...900A1B1029L

Customer-spec. information  
Customer : VM MOTORI

Engine : 116 DAN

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Inlet press., bar : 1,0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 3,70...3,75  
: (3,65...3,80)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 6,00

Del. quantity cm3/ : 2,1...2,9

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm3/ : 6,0...6,5

100 s : (-)

Spread cm3 : 0,4

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm3/ : 0,1...1,0

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 880

Del. quantity : 83,5...85,5

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 7,60

Speed rpm : 965...995

2nd rack travel in: 2,10

Speed rpm : 1035...1065

4th rack travel in: 1150

Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6,00

Testing:

Speed rpm : 100

Minimum rack travel: 19,00

Speed rpm : 250

Rack travel in mm : 5,70...6,30  
Speed rpm : 450  
Maximum rack trave: 1,00

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 880  
Rack travel in m: 9,00  
2nd speed rpm : 400  
Rack travel in m: 9,00  
3rd speed rpm : 300  
Rack travel in m: 10,20...10,80

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 910

#### LOW IDLE

Speed rpm : 200  
Del.quantity cm3/ : 1,5...9,5  
1000 s: (<1,5)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f20  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 153  
 Injection pump  
 Pump designation : PES6A85C420LS2264  
 Governor  
 Governor design. : RSV375...1100A2B600D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A 504 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm3/ : 4,15...4,55

100 s : (-)

Spread cm3 : 0,4

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm3/ : 7,25...8,05

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm3/ : 0,95...1,75

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del. quantity : 82,5...84,5

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 7,40

Speed rpm : 1165...1195

2nd rack travel in: 2,80

Speed rpm : 1235...1165

4th rack travel in: 1320

Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,50

#### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,20...7,80  
Rack travel in mm : 4,70  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,60...9,80  
3rd speed rpm : 400  
Rack travel in m: 9,60...9,90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 850  
Del.quantity cm<sup>3</sup>/ : 90,0...93,0  
1000 s: (-)  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : <93,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1120

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 126,0...132,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 14,5...22,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del.quantity cm<sup>3</sup>/ : 18,5...22,5  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f21  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 154  
 Injection pump  
 Pump designation : PES6A85D42OLS2264  
 Governor  
 Governor design. : RSV375...950A2B553DR

Customer-spec. information  
 Customer : CASE

Engine : A-401 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 691 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,15...4,55  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 0,95...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...C,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 950  
 Del. quantity : 59,0...61,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 36...44

Testing:  
 1st rack travel in: 10,40  
 Speed rpm : 975...1005  
 2nd rack travel in: 4,50  
 Speed rpm : 1035...1065  
 4th rack travel in: 1140  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 19...27  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 6,30

### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,00...6,60  
Rack travel in mm : 3,80  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 1,00

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 950  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 400  
Rack travel in m: 10,30...10,60

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 72,0...76,0  
1000 s: (-)  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : <74,0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 990

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 126,0...132,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1045  
Del.quantity cm<sup>3</sup>/ : 6,5...14,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm<sup>3</sup>/ : 12,5...16,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f22  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 155  
 Injection pump  
 Pump designation : PES6A85D420LS2264  
 Governor  
 Governor design. : RSV375...925A2B544DR

Customer-spec. information  
 Customer : CASE

Engine : A-401 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,15...4,55  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 0,95...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 925  
 Del. quantity : 56,0...58,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 14...22

Testing:  
 1st rack travel in: 10,20  
 Speed rpm : 950...980  
 2nd rack travel in: 6,60  
 Speed rpm : 985...1015  
 4th rack travel in: 1120  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 20...28  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 6,60

### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,60...6,90  
Rack travel in mm : 4,05  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 1,00

### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 925  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 450  
Rack travel in m: 10,30...10,60

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 550  
Del.quantity cm3/ : 65,5...69,5  
1000 s: (-)  
Speed rpm : 450  
Del.quantity cm3/ : <68,0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 965

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 126,0...132,0  
1000 s: (-)

### HIGH IDLE

#### 1st version

Speed rpm : 1010  
Del.quantity cm3/ : 8,5...16,5  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 12,5...16,5  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f23  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 156  
 Injection pump  
 Pump designation : PES6A85D42OLS2264  
 Governor  
 Governor design. : RSV375...1000A2B546D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-401 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm3/ : 4,85...5,35  
 100 s : (-)  
 Spread cm3 : 0,4  
 100 s : (-)  
 2nd speed rpm : 10000  
 Rack travel in mm : 12,00  
 Del. quantity cm3/ : 8,25...9,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm3/ : 1,15...1,95  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 980  
 Del. quantity : 58,0...60,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 36...44

Testing:  
 1st rack travel in: 7,20  
 Speed rpm : 1035...1065  
 2nd rack travel in: 3,70  
 Speed rpm : 1085...1115  
 4th rack travel in: 1200  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 18...26  
 Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 6,50

#### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,20...6,80  
Rack travel in mm : 3,80  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 450  
Rack travel in m: 9,90...10,20

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 61,0...67,0  
1000 s: (-)  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : <66,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1020

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 126,0...132,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1090  
Del.quantity cm<sup>3</sup>/ : 11,5...12,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del.quantity cm<sup>3</sup>/ : 12,5...16,5  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f24  
Edition : 04.08.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 876 157  
Injection pump  
Pump designation : PES6A85D420LS2264  
Governor  
Governor design. : RSV375...1100A2B517D  
R

Customer-spec. information  
Customer : CASE

Engine : A 504 BD

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm<sup>3</sup>/ : 4,15...4,65

100 s : (-)

Spread cm<sup>3</sup> : 0,4

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm<sup>3</sup>/ : 7,25...8,05

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm<sup>3</sup>/ : 0,95...1,75

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 82,5...84,5

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 7,10

Speed rpm : 1165...1195

2nd rack travel in: 2,90

Speed rpm : 1235...1265

4th rack travel in: 1320

Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,50

#### Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,20...7,80  
Rack travel in mm : 4,65  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,60...9,80  
3rd speed rpm : 400  
Rack travel in m: 9,60...9,90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 850  
Del.quantity cm<sup>3</sup>/ : 90,0...93,0  
1000 s: (-)  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : <93,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 124,0...134,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 14,5...22,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del.quantity cm<sup>3</sup>/ : 18,5...22,5  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f 4  
 Edition : 07.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 158  
 Injection pump  
 Pump designation : PES6A90D42ORS2264  
 Governor  
 Governor design. : RSV375...1050A2B567D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-451 BDT

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,6...5,1  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,5  
 100 s : (-)

2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 8,4...9,4  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 2,7...3,6  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Del. quantity : 95,5...97,5  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 35...43

Testing:  
 1st rack travel in: 12,10  
 Speed rpm : 1075...1205  
 2nd rack travel in: 5,40  
 Speed rpm : 1135...1165  
 4th rack travel in: 1260  
 Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
 position degrees: 14...22  
 Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,40

Del.quantity cm3/ : 15,25...19,25  
1000 s: (-)

Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,10...7,70  
Rack travel in mm : 4,15  
Speed rpm : 440...460  
Speed rpm : 580  
Maximum rack trave: 1,00

Remarks:

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 9,00  
2nd speed rpm : 900  
Rack travel in m: 9,10...9,30  
3rd speed rpm : 500  
Rack travel in m: 9,30...9,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 99,0...103,0  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <102,0  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 124,0...134,0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150  
Del.quantity cm3/ : 8,0...18,0  
1000 s: (-)

LOW IDLE

Speed rpm : 375

K03

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f 5  
 Edition : 31.07.89  
 Replaces : -  
 Test oil : ISO 4113  
 Combination no. : 0 400 876 159  
 Injection pump  
 Pump designation : PES6A85D42QLS2264  
 Governor  
 Governor design. : RSV375...1050A2B521D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-451 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187P

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm3/ : 4,35...4,55

100 s : (-)

2nd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm3/ : 1.1...1.7

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 76,5...77,5

1000 : (75,5...79,5)

## RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.75

Speed rpm : 1090...1105

2nd rack travel in: 3,20

Speed rpm : 1165...1195

4th rack travel in: 1280

Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 7,50

Testing:

Speed rpm : 150

Minimum rack travel: 19,00

Speed rpm : 375

Rack travel in mm : 7,40...7,60

Rack travel in mm : 2.35  
Speed rpm : 470...490  
Speed rpm : 600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 500  
Rack travel in m: 9,70...10,00

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650  
Del.quantity cm3/ : 83,0...86,0  
1000 s: (82,0...89,0)  
Speed rpm : 550  
Del.quantity cm3/ : <85,5  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1090...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 124,0...134,0  
1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1150  
Del.quantity cm3/ : 8,5...17,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 15,5...19,5  
1000 s: (-)

Remarks:

APPLICATION

Tractor (tractor engines)

K05

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f 2  
 Edition : 07.80.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 161  
 Injection pump  
 Pump designation : PES6A85D420LS2264  
 Governor  
 Governor design. : RSV375...1100A2B6000  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-504 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm<sup>3</sup>/ : 4,15...4,55

100 s : (-)

Spread cm<sup>3</sup> : 0,4

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm<sup>3</sup>/ : 7,25...8,05

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm<sup>3</sup>/ : 0,95...1,75

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del. quantity : 80,5...84,5

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 14...22

Testing:

1st rack travel in: 12,50

Speed rpm : 1110...1130

2nd rack travel in: 2.80

Speed rpm : 1245...1265

4th rack travel in: 1320

Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,50

Testing:

Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,20...7,80  
Speed rpm : 600  
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,60...9,80  
3rd speed rpm : 400  
Rack travel in m: 9,60...9,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 850  
Del. quantity cm<sup>3</sup>/ : 90,0...93,0  
1000 s: (-)  
Speed rpm : 750  
Del. quantity cm<sup>3</sup>/ : <93,0  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 8,00  
Speed rpm : 1120

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 126,0...132,0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200  
Del. quantity cm<sup>3</sup>/ : 14,5...22,5  
1000 s: (-)

LOW IDLE

Speed rpm : 375  
Del. quantity cm<sup>3</sup>/ : 18,5...22,5  
1000 s: (-)

Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f 6  
Edition : 31.07.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 876 164  
  
Injection pump  
Pump designation : PES6A85D42OLS2264  
Governor  
Governor design. : RSV375...1100A2B605D  
R

Customer-spec. information  
Customer : CASE

Engine : A-401 BD

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: WS 187P

Inlet press., bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 2300 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm<sup>3</sup>/ : 4,35...4,55

100 s: (-)

2nd speed rpm : 2000

Rack travel in mm : 6,00

Del. quantity cm<sup>3</sup>/ : 1,15...1,75

100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 61,0...62,0

1000 : (60,0...63,0)

## RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10,30

Speed rpm : 1140...1160

2nd rack travel in: 4,90

Speed rpm : 1185...1215

4th rack travel in: 1300

Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 6,50

Testing:

Speed rpm : 150

Minimum rack travel: 19,00

Speed rpm : 375

Rack travel in mm : 6,40...6,60

Rack travel in mm : 2,75  
Speed rpm : 470...490  
Speed rpm : 600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,90...10,10  
3rd speed rpm : 450  
Rack travel in m: 10,40...10,70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600  
Del.quantity cm3/ : 73,0...76,0  
1000 s: (72,0...77,0)  
Speed rpm : 500  
Del.quantity cm3/ : <75,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 129,0...139,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Del.quantity cm3/ : 6,5...14,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 12,5...16,5  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 o 1  
Edition : 24.08.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 876 175  
  
Injection pump  
Pump designation : PES6A90D42QLS2354  
Governor  
Governor design. : RSV375...1050A2B567D  
R

Customer-spec. information  
Customer : CASE

Engine : A-504 BDT

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve  
: 9 681 273 009  
  
Inlet press., bar : 1.0  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening  
pressure, bar : 172...175  
  
Test lines : 9 681 230 706  
  
Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
-----  
Rack travel in mm : 9,00  
-----  
Del. quantity cm<sup>3</sup>/ : 5,0...5,3  
-----  
100 s : (-)  
-----  
2nd speed rpm : 200  
Rack travel in mm : 6,00  
Del. quantity cm<sup>3</sup>/ : 0,8...1,4  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1050  
Del. quantity : 98,0...99,0  
1000 : (-)  
Spread cm<sup>3</sup> : 3,0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 38...46

Testing:  
1st rack travel in: 11,50  
Speed rpm : 1090...1105  
2nd rack travel in: 2,00  
Speed rpm : 1185...1215  
4th rack travel in: 1280  
Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
position degrees: 14...22  
Setting point w/out bumper spring  
Speed rpm : 375  
Rack travel in mm : 6,90

Testing:  
Speed rpm : 150  
Minimum rack trave: 19,00

Speed rpm : 375  
Rack travel in mm : 7,30...7,50  
Rack travel in mm : 2,50  
Speed rpm : 470...490  
Speed rpm : 600  
Maximum rack trave: 1,00

Del.quantity cm3/ : 1,6...2,0  
1000 s: (-)

Remarks:

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050  
Rack travel in m: 12,50  
2nd speed rpm : 900  
Rack travel in m: 12,70...12,80  
3rd speed rpm : 500  
Rack travel in m: 12,80...13,10

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 101,0...105,0  
1000 s: (-)  
Spread cm3 : 3,2  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <104,0  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1090...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 127,0...133,0  
1000 s: (-)  
Rack travel in mm : 16,00...16,20

#### HIGH IDLE

1st version

Speed rpm : 1150  
Rack travel in mm : 5,40  
Del.quantity cm3/ : 11,10...11,90  
1000 s: (-)  
Spread cm3 : 4,0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 7,40

K11

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f25  
 Edition : 04.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 183  
 Injection pump  
 Pump designation : PES6A85D42OLS2264  
 Governor  
 Governor design. : RSV375...1100A2B636D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-504 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,15...4,55  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (-)

2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm<sup>3</sup>/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 0,95...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 92,5...94,5  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 43...51

Testing:  
 1st rack travel in: 12,90  
 Speed rpm : 1125...1155  
 2nd rack travel in: 5,10  
 Speed rpm : 1185...1215  
 4th rack travel in: 1260  
 Speed rpm : 0,30...1,50

## LOW IDLE 1

Control lever  
 position degrees: 19...27  
 Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,90

#### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,60...8,20  
Rack travel in mm : 5,3  
Speed rpm : 440...460  
Speed rpm : 620  
Maximum rack trave: 1,50

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 900  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 600  
Rack travel in m: 9,70...10,00

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 102,5...107,5  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <105,5  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 125,0...133,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Del.quantity cm3/ : 12,5...20,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

Del.quantity cm3/ : 18,5...22,5  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 f 2  
 Edition : 31.07.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 187  
 Injection pump  
 Pump designation : PES6A95D41ORS2380  
 Governor  
 Governor design. : RSV400...1100A2B648D  
 L

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6404 T

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : 1 413 385 007

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00  
 : (1,85...2,05)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del.quantity cm3/ : 7,6...8,0  
 100 s : (-)  
 2nd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del.quantity cm3/ : 0,6...1,4  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Aneroid pressure h: 700  
 Del.quantity : 88,0...89,0  
 1000 : (86,0...91,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 40...48

Testing:  
 1st rack travel in: 16.00  
 Speed rpm : 1090...1110  
 2nd rack travel in: 2.30  
 Speed rpm : 1285...1315  
 4th rack travel in: 1400  
 Speed rpm : 0.20...1.20

## LOW IDLE 1

Control lever  
 position degrees: 17...25  
 Setting point w/out bumper spring  
 Speed rpm : 400  
 Rack travel in mm : 5,60

Testing:  
 Speed rpm : 100  
 Minimum rack trave: 19,00  
 Speed rpm : 330

Rack travel in mm : 9,60...12,00  
Rack travel in mm : 2,80  
Speed rpm : 530...570  
Speed rpm : 750  
Maximum rack travel: 1,00  
Speed rpm : 400  
Rack travel in mm : 5,60

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 900  
Rack travel in m: 9,30...9,40  
3rd speed rpm : 750  
Rack travel in m: 9,70...10,00  
4th speed rpm : 450  
Rack travel in m: 9,70...10,00

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 550  
Pressure hPa : 160  
Rack travel mm : \*

Measurement

Speed 1/min : 550

1st pressure hPa : 400  
Rack travel in m: \*\*

#### FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700  
Speed rpm : 750  
Del.quantity cm3/ : 100,0...102,0  
1000 s: (98,0...104,0)

Aneroid pressure h: -  
Speed rpm : 550  
Del.quantity cm3/ : 66,0...72,0  
1000 s: (64,0...74,0)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 159,0  
1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1200  
Del.quantity cm3/ : 18,5...24,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 400  
Del.quantity cm3/ : 12,0...16,0  
1000 s: (-)

Remarks:

\* Start of LDA (manifold-pressure  
compensator) movement

\*\* Ende der LDA-Bewegung  
Start-of-delivery mark at 14° angular  
displacement of the cam after start of  
delivery of cylinder 1

#### APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f 7  
 Edition : 31.07.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 191  
 Injection pump  
 Pump designation : PES6A85D42OLS2264  
 Governor  
 Governor design. : RSV375...1050A2B667D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A 451 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 750 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 4,35...4,55  
 100 s : (-)  
 2nd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 1,15...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Del. quantity : 68,0...69,0  
 1000 : (67,0...70,0)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 41...49

Testing:  
 1st rack travel in: 8,00  
 Speed rpm : 1090...1105  
 2nd rack travel in: 5,80  
 Speed rpm : 1125...1155  
 4th rack travel in: 1260  
 Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
 position degrees: 18...26  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 6,60

Testing:  
 Speed rpm : 150  
 Minimum rack travel: 19,00  
 Speed rpm : 375  
 Rack travel in mm : 6,50...6,70

Speed rpm : 600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050  
Rack travel in m: 9,00  
2nd speed rpm : 800  
Rack travel in m: 9,50...9,70  
3rd speed rpm : 500  
Rack travel in m: 9,80...10,20

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650  
Del.quantity cm3/ : 78,0...81,0  
1000 s: (77,0...82,0)  
Speed rpm : 550  
Del.quantity cm3/ : <80,0  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1090...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 124,0...134,0  
1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1150  
Del.quantity cm3/ : 6,5...14,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 12,5...16,5  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 f 3  
 Edition : 31.07.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 194  
 Injection pump  
 Pump designation : PES6A95D410RS2380  
 Governor  
 Governor design. : RSV600...1100A2B687L

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6404 T

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 413 385 007

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00  
 : (1,85...2,05)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

K18

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del.quantity cm<sup>3</sup>/ : 7,6...8,0

100 s: (-)

2nd speed rpm : 200

Rack travel in mm : 6,00

Del.quantity cm<sup>3</sup>/ : 0,6...1,4

100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 85,5...87,5

1000 : (83,5...89,5)

## RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 8,60

Speed rpm : 1130...1150

2nd rack travel in: 2,70

Speed rpm : 1205...1235

4th rack travel in: 1300

Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever

position degrees: 21...29

Setting point w/out bumper spring

Speed rpm : 600

Rack travel in mm : 5,10

Testing:

Speed rpm : 200

Minimum rack travel: 19,00

Speed rpm : 600

Rack travel in mm : 5,00...5,20

Speed rpm : 850  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9,00

2nd speed rpm : 500

Rack travel in m: 9,00

3rd speed rpm : 400

Rack travel in m: 9,70...10,30

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 159,0...179,0  
1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1175

Del. quantity cm<sup>3</sup>/ : 18,5...24,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 600

Del. quantity cm<sup>3</sup>/ : 12,0...17,0  
1000 s: (-)

#### Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 f 4  
Edition : 31.07.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 876 206  
  
Injection pump  
Pump designation : PES6A95D41ORS2380  
Governor  
Governor design. : RSV400...1100A7B701L

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6404 T

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Inlet press., bar : 1.0  
  
Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00  
: (1,85...2,05)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

K20

1st speed rpm : 1000  
Rack travel in mm : 9,00  
Del. quantity cm<sup>3</sup>/ : 7,6...8,0  
100 s : (-)

2nd speed rpm : 200  
Rack travel in mm : 6,00  
Del. quantity cm<sup>3</sup>/ : 0,6...1,4  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1080  
Del. quantity : 77,5...87,5  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 66...74

Testing:  
1st rack travel in: 11.30  
Speed rpm : 1090...1110  
2nd rack travel in: 4,00  
Speed rpm : 1145...1175  
4th rack travel in: 1250  
Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
position degrees: 25...33  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 6,00

Testing:  
Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 400  
Rack travel in mm : 5,90...6,10  
Speed rpm : 650  
Maximum rack trave: 1,00

## TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080  
Rack travel in m: 9,00  
2nd speed rpm : 400  
Rack travel in m: 9,00  
3rd speed rpm : 300  
Rack travel in m: 10,10...10,80

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1100...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 159,0...179,0  
1000 s: (-)

#### HIGH IDLE

1st version  
Speed rpm : 1150  
Del.quantity cm<sup>3</sup>/ : 11,5...17,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 400  
Del.quantity cm<sup>3</sup>/ : 12,0...16,0  
1000 s: (-)

#### Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 f26  
 Edition : 04.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 209  
 Injection pump  
 Pump designation : PES6A85D420LS2264  
 Governor  
 Governor design. : RSV375...875A7B696R

Customer-spec. information  
 Customer : CASE

Engine : A-504 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery ~~per~~  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm3/ : 4,15...4,55  
 100 s : (-)  
 Spread cm3 : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm3/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm3/ : 0,95...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...C,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 875  
 Del. quantity : 98,5...101,5  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 54...62

Testing:  
 1st rack travel in: 7,20  
 Speed rpm : 915...945  
 2nd rack travel in: 3,90  
 Speed rpm : 945...975  
 4th rack travel in: 1030  
 Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever  
 position degrees: 26...34  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 8,00

Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,70...8,30  
Rack travel in mm : 3,35  
Speed rpm : 440...460  
Speed rpm : 550  
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 875  
Rack travel in m: 9,00  
2nd speed rpm : 350  
Rack travel in m: 9,20...9,80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900  
Del.quantity cm3/ : 70,5...93,5  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 880...895

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 126,0...132,0  
1000 s: (-)

LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 15,5...23,5  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 g 18  
 Edition : 30.05.88  
 Replaces : 25.3.88  
 Test oil : ISO-4113

Combination no. : 0 400 876 218

Injection pump  
 Pump designation : PES6A90D41ORS2293  
 EP type number : 0 410 896 031  
 Governor  
 Governor design. : RSV350...1400AOC1080  
 L  
 Governor no. : 0 420 232 408

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 352

1st version kW : 92.0  
 Rated speed : 2800

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25  
 : (2.10...2.30)

K24

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1400  
 -----  
 Rack travel in mm : 9.70...9.80  
 -----  
 Del. quantity cm<sup>3</sup>/ : 6.3...6.4  
 -----  
 100 s: (6.1...6.6)  
 -----  
 Spread cm<sup>3</sup> : 0.3  
 -----  
 100 s: (0.4)  
 -----

2nd speed rpm : 350.0  
 Rack travel in mm : 6.6...7.2  
 Del. quantity cm<sup>3</sup>/ : 1.0...1.2  
 100 s: (0.8...1.4)  
 Spread cm<sup>3</sup> : 0.2  
 100 s: (0.4)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 3.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1400  
 Del. quantity : 63.0...64.0  
 1000 : (61.0...66.0)  
 Spread cm<sup>3</sup> : 3.00  
 1000 : (4.50)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 68...76

Testing:  
 1st rack travel in: 8.70  
 Speed rpm : 1440...1445  
 2nd rack travel in: 4.00  
 Speed rpm : 1473...1486  
 3rd rack travel in: 4.00

Speed rpm : 1510...1540  
4th rack travel in: 1570  
Speed rpm : 0.30...1.40  
5th rack travel in: 1445...1455  
Speed rpm : 8.70

#### LOW IDLE 1

Control lever  
position degrees: -3  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.80

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 350  
Rack travel in mm : 6.70...6.90  
Rack travel in mm : 2.00  
Speed rpm : 450...510

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 9.70...9.80  
2nd speed rpm : 600  
Rack travel in m: 9.90...10.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600  
Del.quantity cm3/ : 51.0...53.0  
1000 s: (49.0...55.0)  
Speed rpm : 850  
Del.quantity cm3/ : 56.0...58.0  
1000 s: (53.5...60.5)

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 78.0...88.0  
1000 s: (75.0...91.0)  
Rack travel in mm : 15.00...15.40

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.60...7.20  
Del.quantity cm3/ : 10.0...12.0  
1000 s: (8.0...14.0)  
Spread cm3 : 2.50  
1000 s: (4.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 n  
 Edition : 31.07.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 222  
 Injection pump  
 Pump designation : PES6A85D420LS2460  
 Governor  
 Governor design. : RSV375...1100A2B517D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A 504 BDT

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187P

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 12,10  
 Del. quantity cm3/ : 8,4...8,5  
 100 s : (8,3...8,7)  
 Spread cm3 : 0,3  
 100 s : (-)  
 2nd speed rpm : 375  
 Rack travel in mm : 7,50  
 Del. quantity cm3/ : 1,7...2,4  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 83,5...85,0  
 1000 : (82,5...87,0)  
 Spread cm3 : 3,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 39...47

Testing:  
 1st rack travel in: 11,10  
 Speed rpm : 1140...1160  
 2nd rack travel in: 2,80  
 Speed rpm : 1235...1265  
 4th rack travel in: 1320  
 Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
 position degrees: 17...25  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 7,50

Remarks:

Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,30...7,70  
Rack travel in mm : 4,65  
Speed rpm : 430...470  
Speed rpm : 650  
Maximum rack trave: <0,00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 12,10  
2nd speed rpm : 950  
Rack travel in m: 12,50...12,60  
3rd speed rpm : 800  
Rack travel in m: 12,90...13,10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 850  
Del.quantity cm3/ : 89,5...94,0  
1000 s: (88,5...95,0)  
Speed rpm : 750  
Del.quantity cm3/ : <93,0  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,10  
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 125,0...135,0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200  
Del.quantity cm3/ : 14,0...21,0  
1000 s: (-)

LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 17,0...24,0  
1000 s: (-)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 n 4  
 Edition : 28.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 223  
 Injection pump  
 Pump designation : PES6A85D420LS2460  
 EP type number : 0 410 886 912  
 Governor  
 Governor design. : RSV375...1050A2B521D  
 R  
 Governor no. : 0 420 235 150  
 Customer-spec. information  
 Customer : CASE

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 9 681 273 009  
 Inlet press., bar : 1.5  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 9 681 230 706  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1050  
 Rack travel in mm : 11.35...11.45  
 Del. quantity cm<sup>3</sup>/ : 7,6...7,7  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (-)  
 2nd speed rpm : 375  
 Rack travel in mm : 7,50  
 Del. quantity cm<sup>3</sup>/ : 1,4...2,0  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Del. quantity : 76,0...77,0  
 1000 : (-)  
 Spread cm<sup>3</sup> : 3,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 39...47

Testing:  
 1st rack travel in: 10.40  
 Speed rpm : 1090...1105  
 2nd rack travel in: 3.20  
 Speed rpm : 1165...1195  
 4th rack travel in: 1280  
 Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
 position degrees: 16...24  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 7,00

#### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,40...7,60  
Rack travel in mm : 2,35  
Speed rpm : 470...490  
Speed rpm : 650  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 11,40  
2nd speed rpm : 800  
Rack travel in m: 12,30...12,45  
3rd speed rpm : 500  
Rack travel in m: 12,45...12,75

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm3/ : 82,0...85,0  
1000 s: (-)  
Spread cm3 : 4,0  
1000 s: (-)  
Speed rpm : 550  
Del.quantity cm3/ : <84,0  
1000 s: (-)  
Spread cm3 : 4,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10,40  
Speed rpm : 1090...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 124,0...130,0  
1000 s: (-)  
Rack travel in mm : 17,40...17,70

#### HIGH IDLE

##### 1st version

Speed rpm : 1150  
Rack travel in mm : 5,10...5,30  
Del.quantity cm3/ : 11,0...17,0  
1000 s: (-)

Spread cm3 : 3,0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 7,40...7,60  
Del.quantity cm3/ : 14,0...20,0  
1000 s: (-)  
Spread cm3 : 2,0  
1000 s: (-)

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 n 2  
 Edition : 28.08.89  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 400 876 226

Injection pump  
 Pump designation : PES6A85D420LS2460  
 EP type number : 0 410 886 912  
 Governor  
 Governor design. : RSV375...1100A2B636D  
 R  
 Governor no. : 0 420 235 161

Customer-spec. information  
 Customer : CASE

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12,75...12,85

Del. quantity cm<sup>3</sup>/ : 9,2...9,3

100 s : (-)

Spread cm<sup>3</sup> : 0,3

100 s : (-)

2nd speed rpm : 375

Rack travel in mm : 7,90

Del. quantity cm<sup>3</sup>/ : 1,8...2,4

100 s : (-)

Spread cm<sup>3</sup> : 0,2

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3

Speed rpm : 1000

Rack travel in mm : 0,20...1,20

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 92.0...93.0

1000 : (-)

Spread cm<sup>3</sup> : 3,0

1000 : (-)

## RATED SPEED

1st version

Control lever  
 position degrees: 43...51

Testing:

1st rack travel in: 11,80

Speed rpm : 1140...1155

2nd rack travel in: 3,00

Speed rpm : 1205...1235

4th rack travel in: 1300

Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever  
 position degrees: 19...27

Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 7,40

#### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,80...8,00  
Rack travel in mm : 4.00  
Speed rpm : 470...490  
Speed rpm : 620  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 12,80  
2nd speed rpm : 900  
Rack travel in m: 13,50...13,60  
3rd speed rpm : 500  
Rack travel in m: 13,75...14,05

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 103.0...106.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <106.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11,80  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 128,0...134,0  
1000 s: (-)  
Rack travel in mm : 17.40....17.60

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Del.quantity cm3/ : 14,0...20,0  
1000 s: (-)

L03

Spread cm3 : 3.0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 18,0...24,0  
1000 s: (-)  
Spread cm3 : 2.0  
1000 s: (-)

#### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 n 3  
 Edition : 28.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 227  
 Injection pump  
 Pump designation : PES6A85D42OLS2460  
 EP type number : 0 410 886 912  
 Governor  
 Governor design. : RSV375...1050A2B667D  
 R

Customer-spec. information  
 Customer : CASE

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 9 681 273 009

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

L04

## BASIC SETTING

1st speed rpm : 1050  
 Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 7,1...7,2  
 100 s : (-)

Spread cm3 : 0,3  
 100 s : (-)

2nd speed rpm : 375  
 Rack travel in mm : 6.70  
 Del.quantity cm3/ : 1.1...1.7  
 100 s : (-)  
 Spread cm3 : 0.2  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 1000  
 Rack travel in mm : 0,20...1,20

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Del.quantity : 71,1...72,1  
 1000 : (-)  
 Spread cm3 : 3,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 41...49

Testing:  
 1st rack travel in: 10.00  
 Speed rpm : 1090...1105  
 2nd rack travel in: 2.25  
 Speed rpm : 1185...1215  
 4th rack travel in: 1260  
 Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
 position degrees: 18...26  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 6.20

#### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,60...6,80  
Rack travel in mm : 2,60  
Speed rpm : 470...490  
Speed rpm : 600  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 11,00  
2nd speed rpm : 800  
Rack travel in m: 11,70...11,90  
3rd speed rpm : 500  
Rack travel in m: 12,05...12,35

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 82,1...85,1  
1000 s: (-)  
Spread cm<sup>3</sup> : 4.0  
1000 s: (-)  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : <84,6  
1000 s: (-)  
Spread cm<sup>3</sup> : 4.0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10,00  
Speed rpm : 1090...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 126,0...132,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1150  
Rack travel in mm : 4.90...5.10  
Del.quantity cm<sup>3</sup>/ : 7.5...13,3  
1000 s: (-)  
Spread cm<sup>3</sup> : 3.0  
1000 s: (-)

L05

#### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 6.60...6.80  
Del.quantity cm<sup>3</sup>/ : 11,0...17,0  
1000 s: (-)  
Spread cm<sup>3</sup> : 2.0  
1000 s: (-)

#### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

#### APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 n 1  
 Edition : 04.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 228  
 Injection pump  
 Pump designation : PES6A85D42OLS2460  
 Governor  
 Governor design. : RSV375...875A7B696R

Customer-spec. information  
 Customer : CASE

Engine : A-504 BD

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 0,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

L06

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm3/ : 4,15...4,55  
 100 s : (-)  
 Spread cm3 : 0,4  
 100 s : (-)  
 2nd speed rpm : 1000  
 Rack travel in mm : 12,00  
 Del. quantity cm3/ : 7,25...8,05  
 100 s : (-)  
 3rd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm3/ : 0,95...1,75  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 875  
 Del. quantity : 98,5...101,5  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 54...62

Testing:  
 1st rack travel in: 7,20  
 Speed rpm : 915...945  
 2nd rack travel in: 3,90  
 Speed rpm : 945...975  
 4th rack travel in: 1030  
 Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever  
 position degrees: 26...34  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 8,00

Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,70...8,30  
Rack travel in mm : 3,35  
Speed rpm : 440...460  
Speed rpm : 550  
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 875  
Rack travel in m: 9,00  
2nd speed rpm : 350  
Rack travel in m: 9,20...9,80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900  
Del.quantity cm3/ : 70,5...93,5  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 880...895

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 126,0...132,0  
1000 s: (-)

LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 15,5...23,5  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 m 2  
Edition : 24.08.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 876 229  
  
Injection pump  
Pump designation : PES6A90D42OLS2461  
Governor  
Governor design. : RSV375...1050A2B567D  
R

Customer-spec. information  
Customer : CASE

Engine : A-504 BDT

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Inlet press., bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
: (2,10...2,30)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

L08

1st speed rpm : 1050  
Rack travel in mm : 12,45...12,55  
Del. quantity cm3/ : 9,6...9,7  
100 s : (-)  
Spread cm3 : 0,3  
100 s : (-)  
2nd speed rpm : 375  
Rack travel in mm : 7,40  
Del. quantity cm3/ : 1,6...2,2

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1050  
Del. quantity : 96,0...97,0  
1000 : (-)  
Spread cm3 : 3,0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 38...46

Testing:  
1st rack travel in: 11,50  
Speed rpm : 1090...1105  
2nd rack travel in: 2,00  
Speed rpm : 1185...1215  
4th rack travel in: 1280  
Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
position degrees: 14...22  
Setting point w/out bumper spring  
Speed rpm : 375  
Rack travel in mm : 6,90

Testing:  
Speed rpm : 150  
Minimum rack travel: 19,00  
Speed rpm : 375

Rack travel in mm : 7,30...7,50  
Rack travel in mm : 2,50  
Speed rpm : 470...490  
Speed rpm : 600  
Maximum rack travel: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050  
Rack travel in m: 12,50  
2nd speed rpm : 900  
Rack travel in m: 12,70...12,80  
3rd speed rpm : 500  
Rack travel in m: 12,80...13,10

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del. quantity cm<sup>3</sup>/ : 99,0...102,0  
1000 s: (-)  
Spread cm<sup>3</sup> : 4,0  
1000 s: (-)  
Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : <102,0  
1000 s: (-)  
Spread cm<sup>3</sup> : 4,0  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,50  
Speed rpm : 1090...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 121,0...127,0  
1000 s: (-)  
Rack travel in mm : 16,00...16,20

#### HIGH IDLE

1st version

Speed rpm : 1150  
Rack travel in mm : 5,40  
Del. quantity cm<sup>3</sup>/ : 12,0...18,0  
1000 s: (-)  
Spread cm<sup>3</sup> : 3,0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375

L09

Rack travel in mm : 7,40  
Del. quantity cm<sup>3</sup>/ : 15,6...21,6  
1000 s: (-)  
Spread cm<sup>3</sup> : 2,0  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 m 1  
 Edition : 31.07.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 230  
 Injection pump  
 Pump designation : PES6A90D42OLS2461  
 Governor  
 Governor design. : RSV375...1050A2B710D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A 504 BDT

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : WS 187P

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25  
 : (2,10...2,30)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1050  
 Rack travel in mm : 12,00  
 Del. quantity cm3/ : 9,0...9,2  
 100 s: (8,8...9,4)  
 Spread cm3 : 0,3  
 100 s: (-)  
 2nd speed rpm : 375  
 Rack travel in mm : 7,80  
 Del. quantity cm3/ : 1,75...2,35  
 100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Del. quantity : 90,0...92,0  
 1000 : (88,0...94,0)  
 Spread cm3 : 3,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 36...44

Testing:  
 1st rack travel in: 11,00  
 Speed rpm : 1090...1105  
 2nd rack travel in: 2,90  
 Speed rpm : 1165...1195  
 4th rack travel in: 1250  
 Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
 position degrees: 14...22  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 7,80

Remarks:

Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 7,60...8,00  
Rack travel in mm : 4,40  
Speed rpm : 430...470  
Speed rpm : 600  
Maximum rack trave: 1,20

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 12,00  
2nd speed rpm : 800  
Rack travel in m: 12,10...12,30  
3rd speed rpm : 500  
Rack travel in m: 12,10...12,30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 89,0...93,0  
1000 s: (87,0...95,0)  
Speed rpm : 650  
Del.quantity cm3/ : <92,0  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,00  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135,0...145,0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150  
Del.quantity cm3/ : 13,5...19,5  
1000 s: (-)

LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 17,5...23,5  
1000 s: (-)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 f 5  
 Edition : 31.07.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 237  
 Injection pump  
 Pump designation : PES6A95D41ORS2380  
 Governor  
 Governor design. : RSV600...1100A2B747L

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6404 T

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Inlet press., bar : 1.0  
 Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00  
 : (1,85...2,05)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 9,00  
 Del. quantity cm<sup>3</sup>/ : 7,6...8,0  
 100 s: (-)

2nd speed rpm : 200  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 0,6...1,4  
 100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 78,5...82,5  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 40...48

Testing:  
 1st rack travel in: 8,0  
 Speed rpm : 1140...1150  
 2nd rack travel in: 2,80  
 Speed rpm : 1265...1295  
 4th rack travel in: 1400  
 Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
 position degrees: 16...24  
 Setting point w/out bumper spring  
 Speed rpm : 600  
 Rack travel in mm : 5,60

Testing:  
 Speed rpm : 200  
 Minimum rack travel: 19,00  
 Speed rpm : 400  
 Rack travel in mm : 5,50...5,70  
 Speed rpm : 700  
 Maximum rack travel: 1,00

## TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 500

Rack travel in m: 9,00

2nd speed rpm : 400

Rack travel in m: 9,90...10,50

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 1140...1150

## STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 159,0...179,0

1000 s: (-)

## HIGH IDLE

1st version

Speed rpm : 1170

Del.quantity cm<sup>3</sup>/ : 18,5...24,5

1000 s: (-)

## LOW IDLE

Speed rpm : 600

Del.quantity cm<sup>3</sup>/ : 12,0...16,0

1000 s: (-)

## Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 h  
Edition : 25.08.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 876 246  
Injection pump  
Pump designation : PES6A95D41ORS2500  
EP type number : 0 410 896 951  
Governor  
Governor design. : RSV600...1100A2B771L  
Governor no. : 0 420 232 208

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6404 TH

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 1,85...1,95  
: (1,80...2,00)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1100  
Rack travel in mm : 9,75...9,85  
Del. quantity cm<sup>3</sup>/ : 8,8...9,0  
100 s : (-)  
Spread cm<sup>3</sup> : 0,3  
100 s : (-)  
2nd speed rpm : 600  
Rack travel in mm : 5,10  
Del. quantity cm<sup>3</sup>/ : 1,2...1,6  
100 s : (-)  
Spread cm<sup>3</sup> : 0,3  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0,30...1,00

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Del. quantity : 88,0...90,0  
1000 : (-)  
Spread cm<sup>3</sup> : 3,0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 40...48

Testing:  
1st rack travel in: 8,80  
Speed rpm : 1145...1155  
2nd rack travel in: 6,00  
Speed rpm : 1185...1215

## LOW IDLE 1

Control lever  
position degrees: 21...29  
Setting point w/out bumper spring  
Speed rpm : 600  
Rack travel in mm : 4,60

Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 600  
Rack travel in mm : 5,00...5,20  
Rack travel in mm : 2,00  
Speed rpm : 670...730

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8,80  
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 160,0...180,0  
1000 s: (-)  
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version  
Speed rpm : 1200  
Rack travel in mm : 6,00  
Del.quantity cm3/ : 20,0...30,0  
1000 s: (-)  
Spread cm3 : 4,0  
1000 s: (-)

LOW IDLE

Speed rpm : 600  
Rack travel in mm : 5,10  
Del.quantity cm3/ : 12,0...16,0  
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 h 1  
 Edition : 25.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 40 876 247  
 Injection pump  
 Pump designation : PES6A95D410RS2500  
 EP type number : 0 410 896 946  
 Governor  
 Governor design. : RSV400...1100A7B772L  
 Governor no. : 0 420 232 209

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6404 T

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness : 6,00X2,00X600  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 1,85...1,95  
 : (1,80...2,00)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1080  
 Rack travel in mm : 10,00  
 Del. quantity cm<sup>3</sup>/ : 8,9...9,1  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (-)  
 2nd speed rpm : 400  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 1,2...1,6  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...1,00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1080  
 Del. quantity : 89,0...91,0  
 1000 : (-)  
 Spread cm<sup>3</sup> : 3,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 66...74

Testing:  
 1st rack travel in: 9,6  
 Speed rpm : 1130...1160  
 2nd rack travel in: 9,0  
 Speed rpm : 1115...1125

## LOW IDLE 1

Control lever  
 position degrees: 25...33  
 Setting point w/out bumper spring

Speed rpm : 400  
Rack travel in mm : 5,50

Testing:

Speed rpm : 100  
Minimum rack travel: 19,00  
Speed rpm : 400  
Rack travel in mm : 5,90...6,10  
Rack travel in mm : 2,00  
Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 400  
Rack travel in m: 10,00  
2nd speed rpm : 300  
Rack travel in m: 11,20...11,80

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9,00  
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 160,0...190,0  
1000 s: (-)  
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version  
Speed rpm : 1145  
Rack travel in mm : 4,60  
Del.quantity cm<sup>3</sup>/ : 25,0...33,0  
1000 s: (-)  
Spread cm<sup>3</sup> : 4,0  
1000 s: (-)

LOW IDLE

Speed rpm : 400  
Rack travel in mm : 6,00  
Del.quantity cm<sup>3</sup>/ : 12,0...16,0  
1000 s: (-)  
Spread cm<sup>3</sup> : 3,0  
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 h 2  
 Edition : 25.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 249  
 Injection pump  
 Pump designation : PES6A95D41ORS2500  
 EP type number : 0 410 886 246  
 Governor  
 Governor design. : RSV600...1100A2B774L  
 Governor no. : 0 420 232 210

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6404 T

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 1,85...1,95  
 : (1,80...2,00)  
 Rack travel in mm : 9,00...12,00 —  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 9,35...9,45

Del. quantity cm<sup>3</sup>/ : 8,0...8,2  
 100 s : (-)

Spread cm<sup>3</sup> : 0,3  
 100 s : (-)

2nd speed rpm : 600  
 Rack travel in mm : 5,30  
 Del. quantity cm<sup>3</sup>/ : 1,2...1,6  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...1,00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 80,0...82,0  
 1000 : (-)  
 Spread cm<sup>3</sup> : 3,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 40...48

Testing:  
 1st rack travel in: 8,40  
 Speed rpm : 1150...1160  
 2nd rack travel in: 5,0  
 Speed rpm : 1185...1215

## LOW IDLE 1

Control lever  
 position degrees: 16...24  
 Setting point w/out bumper spring

Speed rpm : 600  
Rack travel in mm : 4,80

Testing:

Speed rpm : 100  
Minimum rack travel: 19,00  
Speed rpm : 600  
Rack travel in mm : 5,20...5,40  
Rack travel in mm : 2,00  
Speed rpm : 670...730

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8,40  
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 156,0...176,0  
1000 s: (-)  
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version  
Speed rpm : 1200  
Rack travel in mm : 5,00  
Del.quantity cm<sup>3</sup>/ : 21,0...31,0  
1000 s: (-)  
Spread cm<sup>3</sup> : 4,0  
1000 s: (-)

LOW IDLE

Speed rpm : 600  
Rack travel in mm : 5,30  
Del.quantity cm<sup>3</sup>/ : 12,0...16,0  
1000 s: (-)  
Spread cm<sup>3</sup> : 3,0  
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10,50 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,7 i  
Edition : 25.08.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 400 876 269  
  
Injection pump  
Pump designation : PES6A95D410RS2536  
EP type number : 0 410 896 939  
Governor  
Governor design. : RSV400...1100A2B2018  
DL  
Governor no. : 0 420 234 378  
  
Customer-spec. information  
Customer : JOHN DEERE

Engine : 6466 T

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_ \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 1.85...1.95  
: (1.80...2.00)  
Rack travel in mm : 10.50  
Firing order : 1-5-a3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (.75)

Time to cyl. no. : 1

L20

## BASIC SETTING

1st speed rpm : 1100  
-----  
Rack travel in mm : 10.20...10.30  
-----  
Del. quantity cm3/ : 9.5...9.7  
-----  
100 s: (-)  
-----  
Spread cm3 : 0.3  
-----  
100 s: (-)  
-----  
2nd speed rpm : 400  
Rack travel in mm : 6.00...6.20  
Del. quantity cm3/ : 1.2...1.6  
100 s: (-)  
Spread cm3 : 0.3  
100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1100  
Aneroid pressure h: 800  
Del. quantity : 95.0...97.0  
1000 : (-)  
Spread cm3 : 3.0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 44...52

Testing:  
1st rack travel in: 9.20  
Speed rpm : 1145...1155  
2nd rack travel in: 5.10  
Speed rpm : 1185...1215

## LOW IDLE 1

Control lever  
position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.50

### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 400  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 480...540

### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000  
Rack travel in m: 10.30...10.40  
2nd speed rpm : 800  
Rack travel in m: 10.90...11.00  
3rd speed rpm : 650  
Rack travel in m: 11.10...11.30

Aneroid/Altitude  
Compensator Test

### 1st version

#### Setting

Speed rpm : 500  
Pressure hPa : 133.2  
Rack travel mm : 10.05...10.15

#### Measurement

Speed 1/min : 500

1st pressure hPa : 219.9  
Rack travel in m: 10.70...10.90

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 800  
Speed rpm : 650  
Del.quantity cm<sup>3</sup>/ : 106.5...109.5  
1000 s: (-)  
Spread cm<sup>3</sup> : 4.0  
1000 s: (-)  
Aneroid pressure h: -  
Speed rpm : 550  
Del.quantity cm<sup>3</sup>/ : 75.0...81.0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1145...1155

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 162.0...182.0  
1000 s: (-)  
Rack travel in mm : 19.00...21.00

### HIGH IDLE

#### 1st version

Speed rpm : 1200  
Rack travel in mm : 18.0...28.0  
Del.quantity cm<sup>3</sup>/ : (-)  
1000 s: 5.00...5.20  
Spread cm<sup>3</sup> : 4.0  
1000 s: (-)

### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 6.00...6.10  
Del.quantity cm<sup>3</sup>/ : 12.0...16.0  
1000 s: (-)  
Spread cm<sup>3</sup> : 3.0  
1000 s: (-)

### Remarks:

Start-of-delivery mark = 15.5° after  
start of delivery cyl. 1.

### APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6.2 o 1  
Edition : 28.06.88  
Replaces : 12.10.86  
Test oil : ISO-4113

Combination no. : 0 400 876 333

Injection pump  
Pump designation : PES6A95D32ORS2693Z  
EP type number : 0 410 896 913  
Governor  
Governor design. : RSV300...1300AOC2195  
R  
Governor no. : 0 420 233 200

Customer-spec. information  
Customer : DAF

Engine : DNS 620

1st version kW : 150.0  
Rated speed : 2600

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Rack travel in mm : 7.50...10.50  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
& maximum rack tra: 21.00  
Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.20...12.30

Del. quantity cm<sup>3</sup>/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm<sup>3</sup> : 0.35

100 s: (0.60)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 87.0...89.0

1000 : (85.0...91.0)

Spread cm<sup>3</sup> : 3.5

1000 : (6.0)

## RATED SPEED

1st version

Control lever

position degrees: 54-62

Testing:

1st rack travel in: 10.70

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1410...1440

3rd rack travel in: 4.00  
Speed rpm : 1430...1460  
4th rack travel in: 1595  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 23...31  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.90

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 300  
Rack travel in mm : 6.30...6.50  
Rack travel in mm : 2.00  
Speed rpm : 570...630

#### TORQUE CONTROL

Dimension a mm : 0.60  
Torque control curve - 1st version  
1st speed rpm : 1290  
Rack travel in m: 11.70...11.90  
2nd speed rpm : 500  
Rack travel in m: 12.20...12.30  
3rd speed rpm : 1020  
Rack travel in m: 11.90...12.10

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 12.20...12.30

#### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 11.20...11.40  
2nd pressure hPa : 290  
Rack travel in m: 12.00...12.10  
3rd pressure hPa : 250  
Rack travel in m: 11.50...11.70

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700  
Speed rpm : 1290  
Del.quantity cm3/ : 86.0...88.0  
1000 s: (83.5...90.5)  
Aneroid pressure h: -  
Speed rpm : 600

Del.quantity cm3/ : 65.0...67.0  
1000 s: (63.0...69.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.70  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...145.0  
1000 s: (127.0...148.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.30...6.50  
Del.quantity cm3/ : 7.0...11.0  
1000 s: (4.5...13.5)  
Spread cm3 : 3.5  
1000 s: (5.5)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 9,0 i  
 Edition : 18.8.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 878 006  
 Injection pump  
 Pump designation : PES8A75D32ORS2357  
 Governor  
 Governor design. : RSV300...1200A0B1040  
 DR

Customer-spec. information  
 Customer : IHC

Engine : DV 550-B

1st version kW : 117.7  
 Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 3.95...4.05  
 : (3.90...4.10)  
 Rack travel in mm : 10..00  
 Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200  
 Rack travel in mm : 10.00  
 Del.quantity cm3/ : 5.7...6.0  
 100 s : (-)  
 Spread cm3 : -  
 100 s : (-)  
 2nd speed rpm : 1400  
 Rack travel in mm : 8.70...8.90  
 Del.quantity cm3/ : 3.4 \*  
 100 s : (-)  
 3rd speed rpm : 300  
 Rack travel in mm : 8.70...8.90  
 Del.quantity cm3/ : 3.4 \*  
 100 s : (-)

1st speed rpm : 1200  
 Del.quantity cm3/ : 5.7...6.0 \*\*  
 100 s : (-)  
 Spread cm3 : -  
 100 s : (-)  
 2nd speed rpm : 1400  
 Rack travel in mm : 8.70...8.90  
 Del.quantity cm3/ : 0.1...1.4 \*\*  
 100 s : (-)  
 3rd speed rpm : 300  
 Rack travel in mm : 8.70...8.90  
 Del.quantity cm3/ : 0.1...1.4 \*\*  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1200  
 Del.quantity : 56.0...58.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 46...54

Testing:

1st rack travel in: 7.80  
Speed rpm : 1230...1250  
2nd rack travel in: 4.80  
Speed rpm : 1425...1455

LOW IDLE 1

Control lever  
position degrees: 26...34  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.7

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 300  
Rack travel in mm : 5.40...6.00  
Rack travel in mm : 3.30  
Speed rpm : 440...460  
Speed rpm : 660  
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 8.80  
2nd speed rpm : 400  
Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900  
Del. quantity cm<sup>3</sup>/ : 56.5...59.5  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.80  
Speed rpm : 1225...1235

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 111.0...134.0 \*  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 900  
Del. quantity cm<sup>3</sup>/ : 56.5...59.5  
1000 s: (-)

LOW IDLE

Speed rpm : 300  
Del. quantity cm<sup>3</sup>/ : 14.5...18.5 \*

Remarks:

\* = Cylinders 1, 7, 6 and 4

\*\* = Cylinders 2, 8, 3 and 5

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 1 b  
 Edition : 28.8.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 274 004  
 Injection pump  
 Pump designation : PES4A95C420LS3013  
 EP type number : 0 411 294 997  
 Governor  
 Governor design. : RSV375...1100A2B538D  
 R  
 Governor no. : 0 420 235 142  
 Customer-spec. information  
 Customer : CASE  
 Engine : A - 62326

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Inlet press., bar : 1.00  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 9 681 230 706  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 10.50  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0.50 (0.75)

L26

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 11.20...11.30  
 Del. quantity cm<sup>3</sup>/ : 12.3...12.5  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0.3  
 100 s : (-)  
 2nd speed rpm : 375  
 Rack travel in mm : 3.50...3.70  
 Del. quantity cm<sup>3</sup>/ : 1.4...2.0  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0.3  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 123.0...125.0  
 1000 : (-)  
 Spread cm<sup>3</sup> : 3.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 34...42

Testing:  
 1st rack travel in: 10.20  
 Speed rpm : 1140...1155  
 2nd rack travel in: 3.60  
 Speed rpm : 1185...1215

## LOW IDLE 1

Control lever  
 position degrees: 12...20  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 5.4

#### Testing:

Speed rpm : 150  
Minimum rack travel: 19.00  
Speed rpm : 375  
Rack travel in mm : 5.80...6.00  
Rack travel in mm : 2.90  
Speed rpm : 430...470  
Speed rpm : 550  
Maximum rack travel: 1.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11.20...11.30  
2nd speed rpm : 750  
Rack travel in m: 11.50...11.70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del. quantity cm<sup>3</sup>/ : 125.0...128.0  
1000 s: (-)  
Spread cm<sup>3</sup> : 4.0  
1000 s: (-)  
Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : <63.7  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 139.0...145.0  
1000 s: (-)  
Rack travel in mm : 14.60...14.80

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Rack travel in mm : 3.50...3.70  
Del. quantity cm<sup>3</sup>/ : 14.7...20.7  
1000 s: (-)  
Spread cm<sup>3</sup> : 4.0  
1000 s: (-)

#### LOW IDLE

L27

Speed rpm : 375  
Rack travel in mm : 5.80...6.00  
Del. quantity cm<sup>3</sup>/ : 15.8...21.8  
1000 s: (-)  
Spread cm<sup>3</sup> : 3.0  
1000 s: (-)

#### Remarks:

Test specifications approved by Scania  
on 1987-12-15

Start-of-delivery mark is at start of  
delivery of cylinder 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 5,5 a 3  
 Edition : 29.8.89  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 274 007

Injection pump  
 Pump designation : PES4A95D42OLS3023  
 EP type number : 0 411 294 997  
 Governor  
 Governor design. : RSV375...1100A2B538D  
 R  
 Governor no. : 0 420 235 142

Customer-spec. information  
 Customer : CASE

Engine : A 336 BDT

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 10.50  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0.50 (0.75)

L28

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.15...11.25

Del. quantity cm<sup>3</sup>/ : 12.3...12.5  
 100 s : (-)

Spread cm<sup>3</sup> : 0.3  
 100 s : (-)

2nd speed rpm : 375  
 Rack travel in mm : 5.30...5.50  
 Del. quantity cm<sup>3</sup>/ : 1.5...2.1  
 100 s : (-)

Spread cm<sup>3</sup> : 0.3  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 1000  
 Rack travel in mm : 0.20...1.20

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 123.0...125.0  
 1000 : (-)

Spread cm<sup>3</sup> : 3.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 34...42

Testing:  
 1st rack travel in: 10.20  
 Speed rpm : 1140...1155  
 2nd rack travel in: 2.05  
 Speed rpm : 1205...1235

## LOW IDLE 1

Control lever  
 position degrees: 12...20  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 5.4

#### Testing:

Speed rpm : 150  
Minimum rack travel: 19.00  
Speed rpm : 375  
Rack travel in mm : 5.80...6.00  
Rack travel in mm : 2.90  
Speed rpm : 440...460  
Speed rpm : 550  
Maximum rack travel: 1.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 11.20...11.30  
2nd speed rpm : 680  
Rack travel in m: 11.45...11.75  
3rd speed rpm : 400  
Rack travel in m: 11.45...11.75

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del. quantity cm<sup>3</sup>/ : 125.0...128.0  
1000 s: (-)  
Spread cm<sup>3</sup> : 4.0  
1000 s: (-)  
Speed rpm : 650  
Del. quantity cm<sup>3</sup>/ : <127.4  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 139.0...145.0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Rack travel in mm : 3.20...3.40  
Del. quantity cm<sup>3</sup>/ : 14.7...20.7  
1000 s: (-)  
Spread cm<sup>3</sup> : 4.0  
1000 s: (-)

#### LOW IDLE

M01

Speed rpm : 375  
Rack travel in mm : 5.30...5.50  
Del. quantity cm<sup>3</sup>/ : 15.8...21.8  
1000 s: (-)  
Spread cm<sup>3</sup> : 3.0  
1000 s: (-)

#### Remarks:

Test specifications approved by Scania  
on 1987-12-15

Start-of-delivery mark is at start of  
delivery of cylinder 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 5,5 a 4  
 Edition : 29.8.89  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 274 008

Injection pump  
 Pump designation : PES4A95D420LS3023  
 EP type number : 0 411 294 997  
 Governor  
 Governor design. : RSV375...1100A2B651D  
 R  
 Governor no. : 0 420 235 165

Customer-spec. information  
 Customer : CASE

Engine : A 336 BDT (T/C)

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 10.50  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270  
 Tolerance + - ° : 0.50 (0.75)

MO2

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.25...11.35

Del. quantity cm<sup>3</sup>/ : 12.2...12.4  
 100 s: (-)

Spread cm<sup>3</sup> : 0.3  
 100 s: (-)

2nd speed rpm : 375  
 Rack travel in mm : 5.80...6.00  
 Del. quantity cm<sup>3</sup>/ : 1.7...2.1  
 100 s: (-)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 1000  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 122.5...124.5  
 1000 : (-)  
 Spread cm<sup>3</sup> : 3.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 34...42

Testing:  
 1st rack travel in: 10.30  
 Speed rpm : 1140...1155  
 2nd rack travel in: 2.10  
 Speed rpm : 1185...1215

## LOW IDLE 1

Control lever  
 position degrees: 15...23  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 5.4

### Testing:

Speed rpm : 150  
Minimum rack trave: 19.00  
Speed rpm : 375  
Rack travel in mm : 5.80...6.00  
Rack travel in mm : 2.40  
Speed rpm : 440...460  
Speed rpm : 550  
Maximum rack trave: 1.00

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11.30...11.40  
2nd speed rpm : 800  
Rack travel in m: 11.50...11.60  
3rd speed rpm : 460  
Rack travel in m: 11.50...11.75

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 123.0...127.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <126.0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 10.30  
Speed rpm : 1140...1155

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 132.0...138.0  
1000 s: (-)  
Rack travel in mm : 14.70...14.80

### HIGH IDLE

#### 1st version

Speed rpm : 1200  
Rack travel in mm : 3.40...3.60  
Del.quantity cm3/ : 13.0...19.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)

M03

### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 5.80...6.00  
Del.quantity cm3/ : 17.0...21.0  
1000 s: (-)  
Spread cm3 : 3.0  
1000 s: (-)

### Remarks:

Test specifications approved by Scania  
on 1987-12-15

Start-of-delivery mark is at start of  
delivery of cylinder 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 o  
Edition : 07.08.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 401 276 007  
Injection pump  
Pump designation : PES6A95C42QLS3007  
Governor  
Governor design. : RSV375...1100A2B569D  
R

Customer-spec. information  
Customer : CASE

Engine : A-504 BDT

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10  
: (1,95...2,15)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm3/ : 8,4...9,0

100 s : (-)

Spread cm3 : 0,4

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 15,00

Del. quantity cm3/ : 16,5...17,8

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm3/ : 1,4...2,6

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 136,0...138,0

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 11,20

Speed rpm : 1125...1155

2nd rack travel in: 2,90

Speed rpm : 1185...1215

4th rack travel in: 1250

Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever

position degrees: 15...23

Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 5,90

#### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 5,60...6,20  
Rack travel in mm : 2,70  
Speed rpm : 440...460  
Speed rpm : 540  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 400  
Rack travel in m: 9,60...9,90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 145,5...149,5  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <148,5  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 134,0...144,0  
1000 s: (-)

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Del.quantity cm3/ : 20,5...28,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 17,0...23,0  
1000 s: (-)

#### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 q 1  
 Edition : 24.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 276 011  
 Injection pump  
 Pump designation : PES6A95D42OLS3007  
 Governor  
 Governor design. : RSV375...1100A2B569D  
 R

Customer-spec. information  
 Customer : CASE

Engine : A-504 BDT

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 443 022

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10  
 : (1,95...2,15)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

M06

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm<sup>3</sup>/ : 8,4...9,0

100 s : (-)

Spread cm<sup>3</sup> : 0,4

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 15,00

Del. quantity cm<sup>3</sup>/ : 16,5...17,8

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm<sup>3</sup>/ : 1,4...2,6

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 136,0...138,0

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 10,80

Speed rpm : 1130...1150

2nd rack travel in: 2,90

Speed rpm : 1190...1210

4th rack travel in: 1250

Speed rpm : 0,30...1,00

## LOW IDLE 1

Control lever

position degrees: 15...23

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 5,90

Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 5,60...6,20  
Speed rpm : 540  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 400  
Rack travel in m: 9,60...9,90

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 145,5...149,5  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <149,0  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 134,0...144,0  
1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1200  
Del.quantity cm3/ : 21,5...28,5  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 17,0...23,0  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 b 1  
Edition : 01.08.89  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 276 018

Injection pump  
Pump designation : PES6A100D410RS3020  
Governor  
Governor design. : RSV400...1100A2B676D

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6404

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Inlet press., bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10  
: (1,95...2,15)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

MO8

1st speed rpm : 1000

Rack travel in mm : 9,00

Del.quantity cm3/ : 7,9...8,7

100 s : (-)

2nd speed rpm : 200

Rack travel in mm : 9,00

Del.quantity cm3/ : 4,2...5,4

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del.quantity : 105,0...107,0

1000 : (-)

## RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 10.30

Speed rpm : 1090...1110

2nd rack travel in: 4.30

Speed rpm : 1185...1215

4th rack travel in: 1260

Speed rpm : 0.30...1.00

## LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6,30

Testing:

Speed rpm : 200

Minimum rack travel: 19,00

Speed rpm : 400

Rack travel in mm : 6,00...6,60

Rack travel in mm : 1,80

Speed rpm : 480...520

Speed rpm : 560

Maximum rack travel: 1,00

## TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9,00  
2nd speed rpm : 500  
Rack travel in m: 9,80...10,10

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 550  
Pressure hPa : 550  
Rack travel mm : 0.10...0.20

Measurement

Speed 1/min : 550

1st pressure hPa : 80  
Rack travel in m: 2.60...2.80

## FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700  
Speed rpm : 750  
Del.quantity cm3/ : 117,0...120,0  
1000 s: (-)

Aneroid pressure h: -  
Speed rpm : 550  
Del.quantity cm3/ : 69,0...75,0  
1000 s: (-)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00  
Speed rpm : 1140...1150

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 160,0...180,0  
1000 s: (-)

## HIGH IDLE

1st version

Speed rpm : 1200  
Del.quantity cm3/ : 20,0...30,0  
1000 s: (-)

## LOW IDLE

Speed rpm : 400  
Del.quantity cm3/ : 11,5...15,5  
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 a11  
 Edition : 29.8.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 276 027  
 Injection pump  
 Pump designation : PES6A95D42OLS3024  
 EP type number : 0 411 296 996  
 Governor  
 Governor design. : RSV375...1100A2B516D  
 R  
 Governor no. : 0 420 235 144

Customer-spec. information  
 Customer : CASE

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 9 681 273 009  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 9 681 271 020

Outside diameter  
 x Wall thickness  
 x Length mm : 6.35x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_ \_ \_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 10.50  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 10.75...10.85  
 Del. quantity cm3/ : 11.2...11.4  
 100 s : (-)  
 Spread cm3 : 0.3  
 100 s : (-)

2nd speed rpm : 375  
 Rack travel in mm : 5.60...5.80  
 Del. quantity cm3/ : 1.6...2.2  
 100 s : (-)  
 Spread cm3 : 0.3  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 1000  
 Rack travel in mm : 0.20...1.20

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 112.0...114.0  
 1000 : (-)  
 Spread cm3 : 3.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 35...43

Testing:  
 1st rack travel in: 9.80  
 Speed rpm : 1140...1150  
 2nd rack travel in: 2.20  
 Speed rpm : 1205...1235  
 4th rack travel in: 1280  
 Speed rpm : 0.30...1.00

## LOW IDLE 1

Control lever  
 position degrees: 14...22  
 Setting point w/out bumper spring  
 Speed rpm : 375

Rack travel in mm : 5.20

Testing:

Speed rpm : 150  
Minimum rack trave: 19.00  
Speed rpm : 375  
Rack travel in mm : 5.60...5.80  
Rack travel in mm : 2.45  
Speed rpm : 440...460  
Speed rpm : 550  
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 10.80...10.90  
2nd speed rpm : 800  
Rack travel in m: 10.95...11.25  
3rd speed rpm : 600  
Rack travel in m: 10.95...11.25

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del.quantity cm3/ : 114.0...117.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)  
Speed rpm : 700  
Del.quantity cm3/ : <117.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80  
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 132.0...138.0  
1000 s: (-)  
Rack travel in mm : 14.60...14.80

HIGH IDLE

1st version

Speed rpm : 1200  
Rack travel in mm : 3.50...3.70  
Del.quantity cm3/ : 12.0...18.0  
1000 s: (-)

M11

Spread cm3 : 4.0  
1000 s: (-)

LOW IDLE

Speed rpm : 375  
Rack travel in mm : 5.60...5.80  
Del.quantity cm3/ : 16.0...22.0  
1000 s: (-)  
Spread cm3 : 3.0  
1000 s: (-)

Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 a12  
 Edition : 29.8.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 276 029  
 Injection pump  
 Pump designation : PES6A95D420LS3024  
 EP type number : 0 411 296 996  
 Governor  
 Governor design. : RSV375...1100A2B599D  
 R  
 Governor no. : 0 420 235 152

Customer-spec. information  
 Customer : CASE

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 9 681 273 009  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 9 681 271 020  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.35X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 10.50  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 10.75...10.85  
 Del. quantity cm3/ : 11.2...11.4  
 100 s : (-)  
 Spread cm3 : 0.3  
 100 s : (-)  
 2nd speed rpm : 375  
 Rack travel in mm : 5.60...5.80  
 Del. quantity cm3/ : 1.6...2.2  
 100 s : (-)  
 Spread cm3 : 0.3  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 1000  
 Rack travel in mm : 0.20...1.20

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 112.0...114.0  
 1000 : (-)  
 Spread cm3 : 3.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 35...43

Testing:  
 1st rack travel in: 9.80  
 Speed rpm : 1140...1155  
 2nd rack travel in: 2.20  
 Speed rpm : 1205...1235  
 4th rack travel in: 1300  
 Speed rpm : 0.30...1.00

## LOW IDLE 1

Control lever  
 position degrees: 14...22  
 Setting point w/out bumper spring  
 Speed rpm : 375

Rack travel in mm : 5.20

Testing:

Speed rpm : 150  
Minimum rack trave: 19.00  
Speed rpm : 375  
Rack travel in mm : 5.60...5.80  
Rack travel in mm : 3.00  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 10.80...10.90  
2nd speed rpm : 950  
Rack travel in m: 11.00...11.20  
3rd speed rpm : 600  
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del.quantity cm3/ : 114.0...117.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)  
Speed rpm : 700  
Del.quantity cm3/ : <117.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80  
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 132.0...138.0  
1000 s: (-)  
Rack travel in mm : 14.60...14.80

HIGH IDLE

1st version

Speed rpm : 1200  
Rack travel in mm : 3.50...3.70  
Del.quantity cm3/ : 12.0...18.0  
1000 s: (-)

M13

Spread cm3 : 4.0  
1000 s: (-)

LOW IDLE

Speed rpm : 375  
Rack travel in mm : 5.60...5.80  
Del.quantity cm3/ : 16.0...22.0  
1000 s: (-)  
Spread cm3 : 3.0  
1000 s: (-)

Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 a13  
 Edition : 29.8.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 276 034  
 Injection pump  
 Pump designation : PES6A95D42OLS3024  
 EP type number : 0 411 296 996  
 Governor  
 Governor design. : RSV375...1100A2B697D  
 R

Customer-spec. information  
 Customer : CASE

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : 9 681 273 009  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 9 681 271 020

Outside diameter  
 x Wall thickness  
 x Length mm : 6.35X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 10.50  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 11.25...11.35  
 Del. quantity cm3/ : 12.4...12.6  
 100 s : (-)  
 Spread cm3 : 0.3  
 100 s : (-)  
 2nd speed rpm : 375  
 Rack travel in mm : 5.60...5.80  
 Del. quantity cm3/ : 1.6...2.2  
 100 s : (-)  
 Spread cm3 : 0.3  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 1000  
 Rack travel in mm : 0.20...1.20

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 112.0...114.0  
 1000 : (-)  
 Spread cm3 : 3.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 38...46

Testing:  
 1st rack travel in: 10.30  
 Speed rpm : 1140...1155  
 2nd rack travel in: 3.65  
 Speed rpm : 1185...1215  
 4th rack travel in: 1280  
 Speed rpm : 0.20...1.20

## LOW IDLE 1

Control lever  
 position degrees: 14...22  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 5.20

### Testing:

Speed rpm : 150  
Minimum rack trave: 19.00  
Speed rpm : 375  
Rack travel in mm : 5.60...5.80  
Rack travel in mm : 2.30  
Speed rpm : 440...460  
Speed rpm : 600  
Maximum rack trave: 1.00

### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11.30...11.40  
2nd speed rpm : 750  
Rack travel in m: 11.40...11.60  
3rd speed rpm : 500  
Rack travel in m: 11.40...11.60

### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 750  
Del.quantity cm3/ : 124.0...127.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)  
Speed rpm : 650  
Del.quantity cm3/ : <126.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)

### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 10.30  
Speed rpm : 1140...1155

### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 132.0...138.0  
1000 s: (-)  
Rack travel in mm : 14.00...14.70

### HIGH IDLE

#### 1st version

Speed rpm : 1200  
Rack travel in mm : 3.90...4.10  
Del.quantity cm3/ : 22.0...28.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)

### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 5.60...5.80  
Del.quantity cm3/ : 16.2...22.2  
1000 s: (-)  
Spread cm3 : 3.0  
1000 s: (-)

### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 g 1  
 Edition : 29.8.89  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 276 037

Injection pump  
 Pump designation : PES6A100D41ORS3025  
 EP type number : 0 411 206 009  
 Governor  
 Governor design. : RSV400...1100A2B765D  
 L  
 Governor no. : 0 420 234 344

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6404 A

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

M16

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.00...10.10

Del. quantity cm<sup>3</sup>/ : 10.4...10.6

100 s : (-)

Spread cm<sup>3</sup> : 0.3

100 s : (-)

2nd speed rpm : 400

Rack travel in mm : 6.20...6.40

Del. quantity cm<sup>3</sup>/ : 1.2...1.6

100 s : (-)

Spread cm<sup>3</sup> : 0.3

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3

Speed rpm : 1000

Rack travel in mm : 0.20...1.20

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h : 800

Del. quantity : 104.0...106.0

1000 : (-)

Spread cm<sup>3</sup> : 3.0

1000 : (-)

## RATED SPEED

1st version

Control lever  
 position degrees: 40...48

## Testing:

1st rack travel in: 9.00

Speed rpm : 1145...1155

2nd rack travel in: 2.40

Speed rpm : 1255...1285

4th rack travel in: 1350

Speed rpm : 0.30...1.70

## LOW IDLE 1

Control lever  
 position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 5.80

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 400

Rack travel in mm : 6.20...6.40

Rack travel in mm : 3.00

Speed rpm : 470...490

Speed rpm : 600

Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.00...10.10

2nd speed rpm : 750

Rack travel in m: 10.50...10.60

3rd speed rpm : 500

Rack travel in m: 10.50...10.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 550

Pressure hPa : 86.6

Rack travel mm : \*

Measurement

Speed 1/min : 550

1st pressure hPa : 486.5

Rack travel in m: \*\*

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 750

Del.quantity cm3/ : 113.0...116.0

1000 s: (-)

Spread cm3 : 4.0

1000 s: (-)

Aneroid pressure h: -

Speed rpm : 550

Del.quantity cm3/ : 61.7...67.7

1000 s: (-)

Spread cm3 : 4.0

BREAKAWAY

1st version

M17

1mm rack travel less than

full load rack tr: 9.00

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 155.0...175.0

1000 s: (-)

Rack travel in mm : 21.00

HIGH IDLE

1st version

Speed rpm : 1200

Rack travel in mm : 4.70...4.90

Del.quantity cm3/ : 26.5...36.5

1000 s: (-)

Spread cm3 : 4.0

1000 s: (-)

LOW IDLE

Speed rpm : 400

Rack travel in mm : 6.20...6.40

Del.quantity cm3/ : 12.0...16.0

1000 s: (-)

Spread cm3 : 3.0

1000 s: (-)

Remarks:

\* Start of LDA (manifold-pressure compensator) movement

\*\* Ende der LDA-Bewegung

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 g 2  
 Edition : 25.8.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 276 039  
 Injection pump  
 Pump designation : PES6A100D410RS3025  
 EP type number : 0 411 206 009  
 Governor  
 Governor design. : RSV400...1100A2B766D  
 L  
 Governor no. : 0 420 234 345  
 Customer-spec. information  
 Customer : JOHN DEERE  
 Engine : 6404 A

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 014  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05  
 : (1.90...2.10)  
 Rack travel in mm : 10.50  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

M18

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 10.15...10.25  
 Del. quantity cm<sup>3</sup>/ : 10.9...11.1  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0.3  
 100 s : (-)  
 2nd speed rpm : 400  
 Rack travel in mm : 6.20...6.40  
 Del. quantity cm<sup>3</sup>/ : 1.3...1.7  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0.3  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Aneroid pressure h : 800  
 Del. quantity : 109.2...111.2  
 1000 : (-)  
 Spread cm<sup>3</sup> : 3.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 40...48

Testing:  
 1st rack travel in: 9.20  
 Speed rpm : 1145...1155  
 2nd rack travel in: 4.80  
 Speed rpm : 1185...1215

## LOW IDLE 1

Control lever  
 position degrees: 17...25  
 Setting point w/out bumper spring  
 Speed rpm : 400

Rack travel in mm : 5.80

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 400  
Rack travel in mm : 6.20...6.40  
Rack travel in mm : 2.00  
Speed rpm : 480...540

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 750  
Rack travel in m: 11.20...11.30  
2nd speed rpm : 500  
Rack travel in m: 11.95...12.00

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Pressure hPa : 113.2  
Rack travel mm : 9.55...9.65

Measurement

Speed 1/min : 500

1st pressure hPa : 319.9  
Rack travel in m: 10.80...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 122.3...125.3  
1000 s: (-)  
Spread cm<sup>3</sup> : 4.0  
1000 s: (-)  
Aneroid pressure h: -  
Speed rpm : 550  
Del. quantity cm<sup>3</sup>/ : 70..3...76.3  
1000 s: (-)  
Spread cm<sup>3</sup> : 4.0

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

M19

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 155.0...185.0  
1000 s: (-)  
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1200  
Rack travel in mm : 4.70...4.90  
Del. quantity cm<sup>3</sup>/ : 25.3...35.3  
1000 s: (-)  
Spread cm<sup>3</sup> : 4.0  
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 a10  
 Edition : 17.08.89  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 276 041

Injection pump  
 Pump designation : PES6A100D420LS3024  
 EP type number : 0 411 206 008  
 Governor  
 Governor design. : RSV375...1050A2B785D  
 R  
 Governor no. : 0 420 235 189

Customer-spec. information  
 Customer : CASE

Engine : A 504 BDT

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Inlet press., bar : 1.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10  
 : (1,95...2,15)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

M20

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12,15...12,25

Del. quantity cm<sup>3</sup>/ : 14,3...14,5

100 s : (-)

Spread cm<sup>3</sup> : 0,3

100 s : (-)

2nd speed rpm : 375

Rack travel in mm : 6,10...6,30

Del. quantity cm<sup>3</sup>/ : 1,6...2,2

100 s : (1,4...2,4)

Spread cm<sup>3</sup> : 0,3

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 143,5...145,5

1000 : (141,0...148,0)

Spread cm<sup>3</sup> : 3,0

1000 : (-)

## RATED SPEED

1st version

Control lever  
 position degrees: 38...46

Testing:

1st rack travel in: 11,20

Speed rpm : 1090...1100

2nd rack travel in: 3,10

Speed rpm : 1165...1195

4th rack travel in: 1250

Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
 position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 375  
Rack travel in mm : 5,70

#### Testing:

Speed rpm : 150  
Minimum rack trave: 19,00  
Speed rpm : 375  
Rack travel in mm : 6,10...6,30  
Rack travel in mm : 3,30  
Speed rpm : 440...460  
Speed rpm : 550  
Maximum rack trave: 1,00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050  
Rack travel in m: 12,20  
2nd speed rpm : 700  
Rack travel in m: 12,25...12,45  
3rd speed rpm : 400  
Rack travel in m: 12,25...12,45

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 700  
Del.quantity cm3/ : 144,5...147,5  
1000 s: (141,5...150,5)  
Spread cm3 : 4,0  
1000 s: (-)  
Speed rpm : 600  
Del.quantity cm3/ : <147,0  
1000 s: (<145,0)  
Spread cm3 : 4,0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11,20  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135,0...141,0  
1000 s: (-)  
Rack travel in mm : 14,30...14,60

#### HIGH IDLE

##### 1st version

Speed rpm : 1165  
Rack travel in mm : 4,40...4,60

Del.quantity cm3/ : 25,0...31,0  
1000 s: (22,5...33,5)  
Spread cm3 : 4,0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 6,10...6,30  
Del.quantity cm3/ : 15,6...21,6  
1000 s: (13,6...23,6)  
Spread cm3 : 3,0  
1000 s: (-)

#### Remarks:

Start-of-delivery mark is at start of  
delivery of cylinder 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 6,6 g  
 Edition : 27.07.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 276 042  
 Injection pump  
 Pump designation : PES6A100D41ORS3025  
 Governor  
 Governor design. : RSV400...1050A2B786D  
 L

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6404

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : 1 413 385 007

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10  
 : (1,95...2,15)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11,10

Del. quantity cm<sup>3</sup>/ : 11,45...11,65

100 s : (-)

Spread cm<sup>3</sup> : 0,3

100 s : (-)

2nd speed rpm : 400

Rack travel in mm : 6,60

Del. quantity cm<sup>3</sup>/ : 1,30...1,70

100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1100

Del. quantity : 113,0...117,5

1000 : (111,0...119,5)

## RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 10,10

Speed rpm : 1095...1110

2nd rack travel in: 3,00

Speed rpm : 1195...1225

4th rack travel in: 1300

Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6,60

Testing:

Speed rpm : 100  
Minimum rack trave: 19,00  
Speed rpm : 400  
Rack travel in mm : 6,50...6,70  
Speed rpm : 600  
Maximum rack trave: 0,10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050  
Rack travel in m: 11,10  
2nd speed rpm : 900  
Rack travel in m: 11,20...11,40  
3rd speed rpm : 750  
Rack travel in m: 12,00...12,10

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 550  
Pressure hPa : 890  
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 550

1st pressure hPa : 280  
Rack travel in m: \*

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100  
Speed rpm : 750  
Del.quantity cm3/ : 121,0...126,0  
1000 s: (119,0...128,0)  
Aneroid pressure h: -  
Speed rpm : 550  
Del.quantity cm3/ : 49,0...55,0  
1000 s: (47,0...57,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10,10  
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 155,0...185,0  
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150  
Del.quantity cm3/ : 22,0...32,0  
1000 s: (-)

LOW IDLE

Speed rpm : 400  
Del.quantity cm3/ : 13,0...17,0  
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

\* Start of LDA (manifold-pressure compensator) movement

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,7 j  
 Edition : 24.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 276 044  
 Injection pump  
 Pump designation : PES6A100D41ORS3027  
 EP type number : 0 411 206 013  
 Governor  
 Governor design. : RSV400...1100A2B789D  
 L  
 Governor no. : 0 420 234 368  
 Customer-spec. information  
 Customer : JOHN DEERE  
 Engine : 6466 A

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 457 413 010  
 Inlet press., bar : 1.5  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 9 681 230 706  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10  
 : (1,95...2,15)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 10,85...10,95  
 Del. quantity cm<sup>3</sup>/ : 10,7...10,9  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (-)  
 2nd speed rpm : 400  
 Rack travel in mm : 6,30  
 Del. quantity cm<sup>3</sup>/ : 1,5...1,9  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 106,5...108,5  
 1000 : (-)  
 Spread cm<sup>3</sup> : 3,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 40...48

Testing:  
 1st rack travel in: 9,90  
 Speed rpm : 1145...1155  
 2nd rack travel in: 6,20  
 Speed rpm : 1185...1215

## LOW IDLE 1

Control lever  
 position degrees: 17...25  
 Setting point w/out bumper spring  
 Speed rpm : 400

Rack travel in mm : 5,80

Testing:

Speed rpm : 100  
Minimum rack travel: 19,00  
Speed rpm : 400  
Rack travel in mm : 6,20...6,40  
Rack travel in mm : 2,00  
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 10,90  
2nd speed rpm : 525  
Rack travel in m: 12,35

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Pressure hPa : 117  
Rack travel mm : 10,55...10,65

Measurement

Speed 1/min : 500

1st pressure hPa : 315  
Rack travel in m: 11,60...12,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 525  
Del. quantity cm<sup>3</sup>/ : 116,1...119,1  
1000 s: (-)  
Spread cm<sup>3</sup> : 4,0  
1000 s: (-)  
Speed rpm : 550  
Del. quantity cm<sup>3</sup>/ : 82,6...85,6  
1000 s: (-)  
Spread cm<sup>3</sup> : 4,0  
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9,90  
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 148,0...178,0  
1000 s: (-)  
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version

Speed rpm : 1200  
Rack travel in mm : 6,20  
Del. quantity cm<sup>3</sup>/ : 20,6...35,6  
1000 s: (-)  
Spread cm<sup>3</sup> : 4,0  
1000 s: (-)

LOW IDLE

Speed rpm : 400  
Rack travel in mm : 6,30  
Del. quantity cm<sup>3</sup>/ : 10,8...14,8  
1000 s: (-)  
Spread cm<sup>3</sup> : 3,0  
1000 s: (-)

Remarks:

Start-of-delivery mark at control-rod  
travel 10.5 mm and 15° after start of  
delivery.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 a15  
 Edition : 24.08.89  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 276 045  
 Injection pump  
 Pump designation : PES6A100D420LS3024  
 EP type number : 0 411 206 008  
 Governor  
 Governor design. : RSV375...1100A2B798D  
 R  
 Governor no. : 0 420 235 192

Customer-spec. information  
 Customer : CASE

Engine : A-504 BDT

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 0 681 273 009

Inlet press., bar : 1.0

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10  
 : (1,95...2,15)  
 Rack travel in mm : 9,00...12,00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0,50 (0,75)

## BASIC SETTING

1st speed rpm : 1100  
 Rack travel in mm : 10,85...10,95

Del. quantity cm<sup>3</sup>/ : 12,5...12,7  
 100 s : (-)

Spread cm<sup>3</sup> : 0,3  
 100 s : (-)

2nd speed rpm : 375  
 Rack travel in mm : 6,00  
 Del. quantity cm<sup>3</sup>/ : 1,7...2,3  
 100 s : (-)  
 Spread cm<sup>3</sup> : 0,3  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension  
 Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 125,0...127,0  
 1000 : (-)  
 Spread cm<sup>3</sup> : 3,0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 39...47

Testing:  
 1st rack travel in: 9,90  
 Speed rpm : 1140...1150  
 2nd rack travel in: 3,100  
 Speed rpm : 1210...1240  
 4th rack travel in: 1300  
 Speed rpm : 0,20...1,20

## LOW IDLE 1

Control lever  
 position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 5,50

Testing:

Speed rpm : 150

Minimum rack trave: 19,00

Speed rpm : 375

Rack travel in mm : 5,90...6,10

Rack travel in mm : 3,30

Speed rpm : 440...460

Speed rpm : 600

Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10,90

2nd speed rpm : 750

Rack travel in m: 11,50...11,70

3rd speed rpm : 600

Rack travel in m: 11,70...11,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/ : 133,0...136,0

1000 s: (-)

Spread cm3 : 4,0

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,0

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 130,0...136,0

1000 s: (-)

Rack travel in mm : 14,30...14,60

HIGH IDLE

1st version

Speed rpm : 1215

Rack travel in mm : 4,50

Del.quantity cm3/ : 25,0...31,0

1000 s: (-)

Spread cm3 : 4,0

1000 s: (-)

LOW IDLE

Speed rpm : 375

Rack travel in mm : 6,00

Del.quantity cm3/ : 16,8...22,8

1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : CAS 8,3 a14  
 Edition : 24.8.89  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 276 046

Injection pump  
 Pump designation : PES6A95D42OLS3024  
 EP type number : 0 411 296 996  
 Governor  
 Governor design. : RSV375...1100A2B799D  
 R  
 Governor no. : 0 420 235 194

Customer-spec. information  
 Customer : CASE

Engine : A 504 BDT

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 9 681 273 009

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 271 020

Outside diameter  
 x Wall thickness  
 x Length mm : 6.35X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05  
 : (1.90...2.10)  
 Rack travel in mm : 10.50  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.40...9.50

Del. quantity cm<sup>3</sup>/ : 9.3...9.4  
 100 s : (-)

Spread cm<sup>3</sup> : 3.0  
 100 s : (-)

2nd speed rpm : 375  
 Rack travel in mm : 5.70...5.90  
 Del. quantity cm<sup>3</sup>/ : 1.7...2.1  
 100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del. quantity : 93.5...94.5  
 1000 : (-)  
 Spread cm<sup>3</sup> : 3.0  
 1000 : (-)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 39...47

Testing:  
 1st rack travel in: 8.40  
 Speed rpm : 1140...1150  
 2nd rack travel in: 4.00  
 Speed rpm : 1180...1210  
 4th rack travel in: 1250  
 Speed rpm : 0.30...1.70

## LOW IDLE 1

Control lever  
 position degrees: 17...25  
 Setting point w/out bumper spring  
 Speed rpm : 375  
 Rack travel in mm : 5.30

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.00  
Speed rpm : 375  
Rack travel in mm : 5.70...5.90  
Rack travel in mm : 2.00  
Speed rpm : 465...525  
Speed rpm : 550  
Maximum rack trave: 1.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100  
Rack travel in m: 9.35...9.45  
2nd speed rpm : 800  
Rack travel in m: 9.55...9.85  
3rd speed rpm : 700  
Rack travel in m: 9.65...9.75

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 800  
Del.quantity cm3/ : 92.5...98.5  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)  
Speed rpm : 700  
Del.quantity cm3/ : <96.0  
1000 s: (-)  
Spread cm3 : 4.0  
1000 s: (-)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.40  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...140.0  
1000 s: (-)  
Rack travel in mm : 14.30...14.50

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Rack travel in mm : 3.70...3.90  
Del.quantity cm3/ : 11.0...21.0  
1000 s: (-)

Spread cm3 : 4.0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 5.70...5.90  
Del.quantity cm3/ : 17.0...21.0  
1000 s: (-)  
Spread cm3 : 3.0  
1000 s: (-)

#### Remarks:

Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 8,0 q  
Edition : 18.07.89  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 846 137

Injection pump  
Pump designation : PE6P100/72ORS140  
Governor  
Governor design. : RQ200/1200PA102R

Customer-spec. information  
Customer : SCANIA

Engine : DS 8

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 40...45

Overflow valve : 1 413 417 025

Inlet press., bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2,5...2,6  
: (2,45...2,65)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

N02

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13,50

Del.quantity cm3/ : 12,2...12,6

100 s: (-)

Spread cm3 : 0,5

100 s: (-)

2nd speed rpm : 225  
Rack travel in mm : 6,00  
Del.quantity cm3/ : 1,0...1,2  
100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1270

Rack travel in mm : 15.60...16.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 123,0...127,0

1000 : (-)

## RATED SPEED

1st version

Setting point:

Speed rpm : 1270

Rack travel in mm : 15.8

Testing:

1st rack travel in: 12,50

Speed rpm : 1245...1260

2nd rack travel in: 3,60

Speed rpm : 1405...1435

4th rack travel in: 1500

Speed rpm : 0,00...1,00

## LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.15

Testing:

Speed rpm : 180

Minimum rack travel: 7,00

Speed rpm : 250

Rack travel in mm : 5,50...6,80

Rack travel in mm : 2,10

Speed rpm : 480...520

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del. quantity cm<sup>3</sup>/ : 113,0...117,0  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12,50

Speed rpm : 1220

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 19,0...24,0  
1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1300

Del. quantity cm<sup>3</sup>/ : 29,0...34,0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 225

Del. quantity cm<sup>3</sup>/ : 11,0...13,0  
1000 s: (-)

#### Remarks:

Start-of-delivery setting without ROBO  
diaphragm.

Start-of-delivery setting with ROBO  
diaphragm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 8,0 p  
Edition : 18.07.89  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 846 232

Injection pump  
Pump designation : PE6P100A720RS201  
Governor  
Governor design. : RQ200/1200PA102R

Customer-spec. information  
Customer : SCANIA

Engine : DS 8

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 40...45

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Prestroke mm : 2,50...2,60  
: (2,45...2,65)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

NO4

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13,50

Del. quantity cm<sup>3</sup>/ : 12,2...12,6

100 s : (-)

Spread cm<sup>3</sup> : 0,5

100 s : (-)

2nd speed rpm : 225  
Rack travel in mm : 6,00  
Del. quantity cm<sup>3</sup>/ : 1,0...1,2  
100 s : (-)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1270

Rack travel in mm : 15.60...16.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 123,0...125,0

1000 : (-)

## RATED SPEED

1st version

Setting point:

Speed rpm : 1270

Rack travel in mm : 15.8

Testing:

1st rack travel in: 12,50

Speed rpm : 1245...1260

2nd rack travel in: 3,60

Speed rpm : 1405...1435

4th rack travel in: 1500

Speed rpm : 0,00...1,00

## LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 730

Rack travel in mm : 0.00...0.01

Testing:

Speed rpm : 180

Minimum rack travel: 7,00

Speed rpm : 250

Rack travel in mm : 5,50...6,80

Rack travel in mm : 2,1

Speed rpm : 480...520

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm<sup>3</sup>/ : 113,0...117,0

1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12,50

Speed rpm : 1220

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 19,0...24,0

1000 s: (-)

#### HIGH IDLE

1st version

Speed rpm : 1300

Del.quantity cm<sup>3</sup>/ : 29,0...34,0

1000 s: (-)

#### LOW IDLE

Speed rpm : 225

Del.quantity cm<sup>3</sup>/ : 11,0...13,0

#### Remarks:

Start-of-delivery setting without ROBO diaphragm.

Start-of-delivery setting with ROBO diaphragm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : AL0 13,8 i  
Edition : 24.8.89  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 401 846 349  
  
Injection pump  
Pump designation : PE6P120A420LS314  
EP type number : 0 411 826 088  
Governor  
Governor design. : RQV300...950PA314KR  
Governor no. : 0 421 815 105

Customer-spec. information  
Customer : ALLIS CHALMERS

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 0025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 443 022

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter  
x Wall thickness  
x Length mm : 8,00x2,00x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 10.50  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

N06

## BASIC SETTING

1st speed rpm : 1000  
Rack travel in mm : 12.00  
Del. quantity cm3/ : 27.0...27.6  
100 s : (-)  
Spread cm3 : 0.8  
100 s : (-)  
2nd speed rpm : 300  
Rack travel in mm : 2.1...2.7  
Del. quantity cm3/ : (-)  
100 s : 0.6  
Spread cm3 : (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1050  
Rack travel in mm : 15.00...18.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 950  
Del. quantity : 210.0...212.0  
1000 : (-)  
Spread cm3 : 6.0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 57...65

Testing:  
1st rack travel in: 8.60  
Speed rpm : 990...1000  
2nd rack travel in: 3.30  
Speed rpm : 1135...1165  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

## LOW IDLE 1

Control lever  
position degrees: 8...16

Testing:  
Speed rpm : 200  
Minimum rack trave: 7.40  
Speed rpm : 350  
Rack travel in mm : 3.00...5.20  
Rack travel in mm : 3.00

Speed rpm : 390...410  
Speed rpm : 510  
Maximum rack trave: 1.30

#### START CUT-OUT

Speed 1/min : 150...250

#### FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 197.6...200.4  
1000 s: (-)  
Spread cm3 : 10.0  
1000 s: (-)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...170.0  
1000 s: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,6 a  
 Edition : 15.08.89  
 Replaces : 7.4.89  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 494  
 Injection pump  
 Pump designation : PE6P100A72ORS473  
 EP type number : 0 411 806 196  
 Governor  
 Governor design. : RQ300/1100PA269-1  
 Governor no. : 0 421 801 237

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 355

1st version kW : 177.0  
 Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.50...12.60

Del. quantity cm<sup>3</sup>/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.1...8.3

Del. quantity cm<sup>3</sup>/ : 1.7...2.3

100 s: (1.4...2.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.40...13.90

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.6

Testing:

1st rack travel in: 11.50

Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1185...1215  
4th rack travel in: 1350  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.1

#### Testing:

Speed rpm : 200  
Minimum rack trave: 7.50  
Speed rpm : 300  
Rack travel in mm : 6.00...6.30  
Rack travel in mm : 2.00  
Speed rpm : 350...390

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600  
Del.quantity cm3/ : 110.0...114.0  
1000 s: (107.5...116.5)  
Spread cm3 : 5.00  
1000 s: (7.00)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 11.50  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 150.0...170.0  
1000 s: (146.0...174.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VOL 10,0 o  
Edition : 02.05.89  
Replaces : 9.10.87  
Test oil : ISO-4113  
  
Combination no. : 0 401 846 745  
  
Injection pump  
Pump designation : PE6P110A320RS3080  
EP type number : 0 411 816 722  
Governor  
Governor design. : RQV250...1100PA589  
Governor no. : 0 421 813 307

Customer-spec. information  
Customer : VOLVO

Engine : TD 100 G

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...174

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X-600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.30...12.40

Del. quantity cm<sup>3</sup>/ : 16.7...16.9

100 s: (16.4...17.2)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.9...4.1

Del. quantity cm<sup>3</sup>/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
travel mm : 1.20...1.30

2nd speed rpm : 370  
travel mm : 2.60...3.00

3rd speed rpm : 430  
travel mm : 3.50...3.90

4th speed rpm : 1160  
travel mm : 8.10...8.30

5th speed rpm : 1210  
travel mm : 9.40...9.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 167.0...169.0

1000 : (164.0...172.0)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version  
Control lever  
position degrees: 59...67

Testing:  
1st rack travel in: 11.30  
Speed rpm : 1160...1170  
2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 4...12

Testing:  
Speed rpm : 100  
Minimum rack travel: 5.30  
Speed rpm : 250  
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION  
Speed rpm : 270...380

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 12.30...12.40

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.80...10.00  
2nd pressure hPa : 610  
Rack travel in m: 12.10...12.20  
3rd pressure hPa : 280  
Rack travel in m: 10.10...10.30

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 700  
Del. quantity cm<sup>3</sup>/ : 121.0...124.0  
1000 s: (118.0...127.0)

#### BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 11.30  
Speed rpm : 1160...1170

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 160.0...190.0  
1000 s: (156.0...196.0)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 3.90...4.10  
Del. quantity cm<sup>3</sup>/ : 15.0...19.0  
1000 s: (12.5...21.5)  
Spread cm<sup>3</sup> : 3.00  
1000 s: (6.00)

#### Remarks:

:  
Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 9,0 j  
Edition : 07.02.89  
Replaces : 12.1.89  
Test oil : ISO-4113  
Combination no. : 0 401 846 849  
Injection pump  
Pump designation : PE6P120A32ORS3196  
EP type number : 0 411 826 763  
Governor  
Governor design. : RQV200...1100PA729-1  
Governor no. : 0 421 813 470

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DS9 06

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.40...10.50

Del. quantity cm<sup>3</sup>/ : 13.3...13.5

100 s: (13.0...13.8)

Spread cm<sup>3</sup> : 0.5

100 s: (0.8)

2nd speed rpm : 225.0

Rack travel in mm : 4.7...5.3

Del. quantity cm<sup>3</sup>/ : 2.2...2.6

100 s: (-)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 0.50...0.90

2nd speed rpm : 350

travel mm : 2.00...2.60

3rd speed rpm : 650

travel mm : 4.90...5.50

4th speed rpm : 1145

travel mm : 8.30...8.50

5th speed rpm : 1250

travel mm : 9.20...9.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

### 1st version

Speed rpm : 700

Del. quantity : 133.0...135.0

1000 : (130.0...138.0)

Spread cm<sup>3</sup> : 5.00

1000 : (8.00)

## RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 9.40

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1235...1265

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 27...35

Testing:

Speed rpm : 100

Minimum rack travel: 6.20

Speed rpm : 225

Rack travel in mm : 4.60...4.80

Rack travel in mm : 2.00

Speed rpm : 300...360

## FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del. quantity cm<sup>3</sup>/ : 145.0...153.0

1000 s: (143.0...155.0)

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1140...1150

## STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 330.0...380.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

## LOW IDLE

Speed rpm : 225

Rack travel in mm : 4.60...4.80

Remarks:

:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

## ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphragm.

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on 1988-09-12

Start of delivery - engine: 13° before TDC

Firing sequence of engine:

1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 18,3 c  
Edition : 20.6.88  
Replaces : 10.85  
Test oil : ISO-4113

Combination no. : 0 401 849 705

Injection pump  
Pump designation : PE10P110A320LS3818  
Governor  
Governor design. : RQ300/1150PA437-2

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 423

1st version kW : 261.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20  
: (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 6- 3- 5-  
2- 10- 9- 4

Phasing : 0-27-72-99-144-171-2  
16-243-288-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.20...11.30

Del. quantity cm<sup>3</sup>/ : 12.6...12.8

100 s: (12.3...13.0)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

2nd speed rpm : 300

Rack travel in mm : 7.9...8.1

Del. quantity cm<sup>3</sup>/ : 1.2...2.0

100 s: (0.9...2.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 126.0...128.0

1000 : (123.5...130.5)

Spread cm<sup>3</sup> : 4.00

1000 : (8.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.20

Speed rpm : 1190...12.05

2nd rack travel in: 4.00

Speed rpm : 1225...1255

4th rack travel in: 1350

Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 8.0

#### Testing:

Speed rpm : 100

Minimum rack trave: 9.50

Speed rpm : 300

Rack travel in mm : 7.90...8.10

Rack travel in mm : 2.00

Speed rpm : 430...470

#### TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 11.20...11.30

2nd speed rpm : 600

Rack travel in m: 11.70...11.90

3rd speed rpm : 900

Rack travel in m: 11.60...11.80

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600

Del.quantity cm3/ : 109.0...113.0

1000 s: (106.0...116.0)

Speed rpm : 900

Del.quantity cm3/ : 118.0...123.0

1000 s: (115.0...126.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1190...1205

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : PEN 7.0 b 2  
 Edition : 28.06.88  
 Replaces : 05.84  
 Test oil : ISO-4113  
 Combination no. : 0 401 876 272  
 Injection pump  
 Pump designation : PE6P110A32ORS260W  
 EP type number : 0 411 816 154  
 Governor  
 Governor design. : RSV250...1250P0/374-2R  
 Governor no. : 0 421 833 068

Customer-spec. information  
 Customer : VOLVO-PENTA

Engine : TAMD70E

1st version kW : 228.0  
 Rated speed : 2500

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1000  
 Rack travel in mm : 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 14.1...14.3  
 100 s: (13.8...14.6)

Spread cm<sup>3</sup> : 0.40  
 100 s: (0.75)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : 2.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1000  
 Aneroid pressure h: 900  
 Del. quantity : 141.0...143.0  
 1000 : (138.0...146.0)  
 Spread cm<sup>3</sup> : 4.0  
 1000 : (7.5)

## RATED SPEED

1st version  
 Control lever  
 position degrees: 50...58

Testing:  
 1st rack travel in: 11.10  
 Speed rpm : 1290...1300  
 2nd rack travel in: 4.00  
 Speed rpm : 1390...1420  
 4th rack travel in: 1510  
 Speed rpm : 0.30...1.70

## LOW IDLE 1

Control lever  
 position degrees: 22...30

Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.70  
Speed rpm : 250  
Rack travel in mm : 6.10...6.30  
Rack travel in mm : 2.00  
Speed rpm : 480...540

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.00...9.40

2nd pressure hPa : 590

Rack travel in m: 11.30...11.40

3rd pressure hPa : 300

Rack travel in m: 9.70...9.90

#### FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 700

Del. quantity cm<sup>3</sup>/ : 85.0...88.0  
1000 s: (82.0...91.0)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm<sup>3</sup>/ : 170.0...210.0

Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.10...6.30

Del. quantity cm<sup>3</sup>/ : 11.0...15.0

Spread cm<sup>3</sup> : 3.0  
1000 s: (6.0)

Remarks:

APPLICATION

Navy

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : PEN 7.1 b  
Edition : 27.06.88  
Replaces : 10.85  
Test oil : ISO-4113  
  
Combination no. : 0 401 876 315  
  
Injection pump  
Pump designation : PE6P110A320RS492  
EP type number : 0 411 816 161  
Governor  
Governor design. : RSV650...750P4/421  
Governor no. : 0 421 833 120

Customer-spec. information  
Customer : VOLVO-PENTA

Engine : TJD71G

1st version kW : 127.0  
Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
: (2.95...3.15)  
Rack travel in mm : 9.00...12.00

N18

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700  
-----  
Rack travel in mm : 12.60...12.70  
-----  
Del. quantity cm<sup>3</sup>/ : 13.4...13.6  
-----  
100 s: 13.1...13.9  
-----  
Spread cm<sup>3</sup> : 0.40  
-----  
100 s: (0.75)  
-----

2nd speed rpm : 650  
Rack travel in mm : 4.40...4.60  
Del. quantity cm<sup>3</sup>/ : 1.6...2.0  
100 s: (1.3...2.2)  
Spread cm<sup>3</sup> : 0.30  
100 s: (0.60)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
Click setting x : 2.75

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Del. quantity : 134.0...136.0  
1000 : (131.0...139.0)  
Spread cm<sup>3</sup> : 4.0  
1000 : (7.5)

## RATED SPEED

1st version  
Control lever  
position degrees: 35...43

Testing:  
1st rack travel in: 11.6  
Speed rpm : 750...755  
2nd rack travel in: 4.0  
Speed rpm : 775...785  
4th rack travel in: 930

Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever

position degrees: 29...37

Setting point w/out bumper spring

Speed rpm : 650

Rack travel in mm : 6.10

Speed rpm : 650

Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

Speed rpm : 660...700

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 750...755

#### LOW IDLE

Speed rpm : 650

Rack travel in mm : 6.00...6.20

Remarks:

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90  
mm

#### APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : ALO 12,0 a  
Edition : 23.08.89  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 046 169  
Injection pump  
Pump designation : PES6P120A32ORS358  
Governor  
Governor design. : RQV375...1250PA385KR

Customer-spec. information  
Customer : ALLIS-CHALMERS

Engine : 12 LITRE

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder  
assembly : 0 681 443 022

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter  
x Wall thickness  
x Length mm : 8,00x2,00x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Prestroke mm : 2,80...2,90  
: (2,75...2,95)  
Rack travel in mm : 9,00...12,00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

N20

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1250  
Rack travel in mm : 9,80  
Del. quantity cm3/ : 20,3...20,5  
100 s: (20,1...20,7)  
Spread cm3 : 0,5  
100 s: (-)  
2nd speed rpm : 375  
Rack travel in mm : 4,90  
Del. quantity cm3/ : 2,2...2,8  
100 s: (-)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1320  
Rack travel in mm : 15,00...17,60

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1250  
Del. quantity : 203,0...205,0  
1000 : (201,0...207,0)  
Spread cm3 : 5,0  
1000 : (-)

## RATED SPEED

1st version  
Control lever  
position degrees: 59...67

Setting point:  
Speed rpm : 1320  
Rack travel in mm : 16,3

Testing:  
1st rack travel in: 8,80  
Speed rpm : 1290...1300  
2nd rack travel in: 3,50  
Speed rpm : 1525...1555  
4th rack travel in: 1620  
Speed rpm : 0,00...1,00

## LOW IDLE 1

Control lever  
position degrees: 9...17  
Setting point w/out bumper spring  
Speed rpm : 300

Rack travel in mm : 8,55

Testing:

Speed rpm : 375  
Minimum rack trave: 4,70  
Speed rpm : 400  
Rack travel in mm : 3,50...5,70  
Rack travel in mm : 1,10  
Speed rpm : 590...610  
Speed rpm : 620  
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250  
Rack travel in m: 9,80  
2nd speed rpm : 1000  
Rack travel in m: 9,75  
3rd speed rpm : 800  
Rack travel in m: 9,70

START CUT-OUT

Speed 1/min : 220...280

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del.quantity cm3/ : 183,0...187,0  
1000 s: (181,0...189,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,80  
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 115,0...155,0  
1000 s: (-)

LOW IDLE

Speed rpm : 375  
Del.quantity cm3/ : 22,0...28,0  
1000 s: (-)

Remarks:

APPLICATION

Tractor (tractor engines)

N21

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 14,9 f  
Edition : 09.03.87  
Replaces : 25.9.86  
Test oil : ISO-4113  
  
Combination no. : 0 402 048 044  
  
Injection pump  
Pump designation : PES8P120A320RS507  
EP type number : 0 412 028 023  
Governor  
Governor design. : RQV275...1050PA665-1  
Governor no. : 0 421 813 468

Customer-spec. information  
Customer : RVI

Engine : MIVR083530C

1st version kW : 280.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 8- 4- 2- 7- 3-  
6- 5

Phasing : 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1050  
Rack travel in mm : 11.00...11.10  
Del. quantity cm3/ : 18.2...18.4  
100 s: (17.9...18.7)  
Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 275.0  
Rack travel in mm : 6.2...6.4  
Del. quantity cm3/ : 1.7...2.3  
100 s: (1.4...2.6)  
Spread cm3 : 0.8  
100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 275  
travel mm : 1.40...1.60  
2nd speed rpm : 450  
travel mm : 3.40...3.80  
3rd speed rpm : 800  
travel mm : 5.80...6.00  
4th speed rpm : 1050  
travel mm : 7.60...7.80

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1140  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1050  
Aneroid pressure h: 700  
Del. quantity : 182.0...184.0  
1000 : (179.0...187.0)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 61...69

#### Testing:

1st rack travel in: 10.00  
Speed rpm : 1105...1115  
2nd rack travel in: 4.00  
Speed rpm : 1195...1225  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 7...15

#### Testing:

Speed rpm : 200  
Minimum rack travel: 6.40  
Speed rpm : 275  
Rack travel in mm : 4.60...4.80

#### CONSTANT REGULATION

Speed rpm : 280...405

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 11.00...11.10

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.40...9.50  
2nd pressure hPa : 150  
Rack travel in m: 10.60...10.80  
3rd pressure hPa : 110  
Rack travel in m: 9.60...9.90

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700  
Speed rpm : 650

N23

Del.quantity cm3/ : 165.0...171.0  
1000 s: (162.0...174.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 116.0...118.0  
1000 s: (113.0...121.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.00  
Speed rpm : 1105...1115

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.60...4.80

#### Remarks:

:  
Start-of-delivery mark 13° cam angle  
after start of delivery cyl. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 14,9 f2  
 Edition : 27.03.87  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 402 048 045

Injection pump  
 Pump designation : PES8P120A320RS507  
 EP type number : 0 412 028 023  
 Governor  
 Governor design. : RQV275...1050PA665  
 Governor no. : 0 421 813 370

Customer-spec. information  
 Customer : RVI

Engine : MIVS083530

1st version kW : 268.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 4- 2- 7- 3-  
 6- 5

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.2...11.3

Del. quantity cm<sup>3</sup>/ : 18.7...18.9

100 s: (18.4...19.2)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 6.4...6.6

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 275  
 travel mm : 1.30...1.70

2nd speed rpm : 400  
 travel mm : 3.00...3.50

3rd speed rpm : 525  
 travel mm : 4.00...4.40

4th speed rpm : 650  
 travel mm : 4.90...5.30

5th speed rpm : 1050  
 travel mm : 7.60...7.80

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del.quantity : 187.0...189.0  
1000 : (184.0...192.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 61...69

#### Testing:

1st rack travel in: 10.20  
Speed rpm : 1105...1115  
2nd rack travel in: 4.00  
Speed rpm : 1195...1225  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 7...15

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.40  
Speed rpm : 275  
Rack travel in mm : 4.60...4.80

#### CONSTANT REGULATION

Speed rpm : 290...405

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 11.20...11.30

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.30...9.40  
2nd pressure hPa : 280  
Rack travel in m: 10.80...10.90  
3rd pressure hPa : 220  
Rack travel in m: 9.50...9.70

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

N25

Aneroid pressure h: 700  
Speed rpm : 650  
Del.quantity cm3/ : 170.0...176.0  
1000 s: (167.0...179.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 114.0...116.0  
1000 s: (111.0...119.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 1105...1115

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.60...4.80  
Del.quantity cm3/ : 14.0...20.0  
1000 s: (11.0...23.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

#### Remarks:

:  
Start-of-delivery mark 13° cam angle  
after start of delivery cyl. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 14,9 e  
 Edition : 13.05.87  
 Replaces : 5.85  
 Test oil : ISO-4113  
 Combination no. : 0 402 048 701  
 Injection pump  
 Pump designation : PES8P120A32ORS3124  
 EP type number : 0 412 028 701  
 Governor  
 Governor design. : RQ750PA596  
 Governor no. : 0 421 801 149

Customer-spec. information  
 Customer : RVI

Engine : MIVS (R) 083530

1st version kW : 320.0  
 Rated speed : 1500

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 4- 2- 7- 3-  
 6- 5

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.40...11.50

Del. quantity cm<sup>3</sup>/ : 26.7...26.9

100 s: (26.4...27.2)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.2...4.4

Del. quantity cm<sup>3</sup>/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 267.0...269.0

1000 : (264.0...272.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Testing:

1st rack travel in: 10.40

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 775...785

4th rack travel in: 900

Speed rpm : 0.00...1.00

## BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40  
Speed rpm : 750...755

Remarks:

:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.